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PSYCHOLOGY AND PHILOSOPHY.

I.—ON SOME OMISSIONS OF INTROSPECTIVE PSYCHOLOGY.

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As is well known, contradictory opinions about the value of introspection prevail. Comte and Maudsley, for example, call it worthless; Ueberweg and Brentano come near calling it infallible. Both opinions are extravagances; the first for reasons too obvious to be given, the second because it fails to discriminate between the immediate *feltness* of a mental state and its perception by a subsequent act of reflection. The *esse* of a mental state, the advocates of infallibility say, is its *sentiri;* it has no recondite mode of being "in-itself". It must therefore be felt as it really is, without chance of error. But the feltness which is its essence is its own immanent and intrinsic feltness at the moment of being experienced, and has nothing to do with the way in which future conscious acts may feel about it. Such *sentiri* in future acts is not what is meant by its *esse*. And yet such *post-mortem sentiri* is the only way in which the introspective psychologist can grasp it. In its bare immediacy it is of no use to him. For his purposes it must be more than experienced; it must be remembered, reflected on, named, classed, known, related to other facts of the same order. And as in

the naming, classing, and knowing of things in general we are notoriously fallible, why not also here? Comte is quite right in laying stress on the fact that a feeling, to be named, judged, or perceived, must be already past. No subjective state, whilst present, is its own object; its object is always something else. There are, it is true, cases in which we appear to be naming our present feeling, and so to be experiencing and observing the same inner fact at a single stroke, as when we say "I feel tired," "I am angry," &c. But these are illusory, and a little attention unmasks the illusion. The present conscious state, when I say "I feel tired," is not the direct feeling of tire; when I say "I feel angry," it is not the direct feeling of anger. It is the feeling of *saying-I-feel-tired*, of *saying-I-feel-angry*,—entirely different matters, so different that the fatigue and anger apparently included in them are considerable modifications of the fatigue and anger directly felt the previous instant. The act of naming them has momentarily detracted from their force.

The only sound grounds on which the infallible veracity of the introspective judgment might be maintained, are empirical. If we have reason to think it has never yet deceived us, we may continue to trust it. This is the ground actually maintained by Herr Mohr in a recent little work.[1] "The illusions of our senses," says this author, "have undermined our belief in the reality of the outer world; in the sphere of inner observation our confidence is intact, for we have never found ourselves to be in error about the reality of an act of thought or feeling. We have never been misled into thinking we were *not* in doubt or in anger when these conditions were really states of our consciousness."

But, sound as the reasoning here is, I fear the premisses are not correct; and I propose in this article to supplement Mr. Sully's chapter on the Illusions of Introspection, by showing what immense tracts of our inner life are habitually overlooked and falsified by our most approved psychological authorities.

When we take a rapid general view of the wonderful stream of our consciousness, what strikes us first is the different *pace* of its different portions. Our mental life, like a bird's life, seems to be made of an alternation of flights and perchings. The rhythm of language expresses this, where every thought is expressed in a sentence, and every sentence closed by a period. The resting-places are usually occupied by sensorial imaginations of some sort, whose peculiarity is that they can be held before the mind for an indefinite time, and contem-

[1] *Grundlage der empirischen Psychologie*, Leipzig, 1882, p. 47.

plated without changing; the places of flight are filled with thoughts of relations, static or dynamic, that for the most part obtain between the matters contemplated in the periods of comparative rest.

Let us call the resting-places the "substantive parts," and the places of flight the "transitive parts," of the stream of thought. We may then say that the main end of our thinking is at all times the attainment of some other "substantive" part than the one from which we have just been dislodged. And we may say that the main use of the transitive parts is to lead us from one substantive conclusion to another. Of this perhaps more hereafter.

Now the first difficulty of introspection is that of seeing the transitive parts for what they really are. If they are but flights to a conclusion, stopping them to look at them before the conclusion is reached is really annihilating them. Whilst if we wait till the conclusion *be* reached, it so exceeds them in vigour and stability that it quite eclipses and swallows them up in its glare. Let anyone try to cut a thought across in the middle and get a look at its section, and he will see how difficult the introspective observation of the transitive tracts is. The rush of the thought is so headlong that it almost always brings us up at the conclusion before we can arrest it. Or if our purpose is nimble enough and we do arrest it, it ceases forthwith to be itself. As a snowflake-crystal caught in the warm hand is no longer a crystal but a drop, so, instead of catching the feeling of relation moving to its term, we find we have caught some substantive thing, usually the last word we were pronouncing, statically taken, and with its function, tendency and particular meaning in the sentence quite evaporated. The attempt at introspective analysis in these cases is in fact like seizing a spinning top to catch its motion, or trying to turn up the gas quickly enough to see how the darkness looks. And the challenge to *produce* these psychoses, which is sure to be thrown by doubting psychologists at anyone who contends for their existence, is as unfair as Zeno's treatment of the advocates of motion, when, asking them to point out in what place an arrow *is* when it moves, he argues the falsity of their thesis from their inability to make to so preposterous a question an immediate reply.

If holding fast the transitive parts of thought's stream, so as to observe them, be the first great difficulty of introspection, then its first great fallacy must necessarily be a failure to register them and give them their due, and a far too great emphasis laid on the more substantive parts of the stream. Accordingly we find that the orthodox empirical

psychologists, whether of England, Germany, or France, record under the name of images, *Vorstellungen*, or ideas, only such representations as have objects that can be brought to the distinct focus of attention and there stably held in view. Hume's fantastical assertion that we can form no idea of a thing with either quality or quantity without representing its exact degrees of each, has remained an undisputed dogma in nominalistic minds, until Mr. Galton and Prof. Huxley, or perhaps M. Taine, first called it in question. Strange that so patent an inward fact as the existence of "blended" images could be overlooked! Strange that the assertion could virtually be made that we cannot imagine a printed page without at the same time imagining every letter on it—and made too by a school that prided itself particularly on its powers of observation! However, of such blunders is the history of psychology composed.

But if blurred and indistinct substantive states could be systematically denied, *a fortiori* was it easy to deny that *transitive* states, considered as segments of the stream of sentiency, have any existence at all. The principal effort of the Humian school has been to abrogate relations, not only from the sphere of reality, but from the sphere of consciousness; most of them being explained as words, to which no definite meanings, inner or outer, attach. The principal effort of the Platonising schools has been to prove that, since relations are unquestionably perceived to obtain between realities, but as unquestionably cannot be perceived through any modifications of the stream of subjective sentiency comparable in nature with those through which the substantive qualities of things are perceived, they must needs be perceived by the immediate agency of a supersensible Reason, the omission to do homage to which is for the Platonists the vital defect in the psychological performances of the opposite school.

The second great fallacy of introspection, then, is the ignoring of the fact that a peculiar modification of our subjective feeling corresponds to our awareness of each objective relation, and is the condition of its being known. To Mr. Spencer belongs the honour of having exploded this fallacy, in a few pages that seem to have made but small impression on his contemporaries, but which I cannot help regarding as by far the most important portion of his *Principles of Psychology*. In § 65 of that work it is distinctly laid down that, subjectively considered, "a relation proves to be itself a kind of feeling,—the momentary feeling accompanying the transition from one conspicuous feeling to another con-

spicuous feeling"; and that, "notwithstanding its extreme brevity, its qualitative character is appreciable". The phrase "feeling of relation" will be sure to shock certain fastidious ears, but I nevertheless think we had better use it. Surely if any objective truth whatever can come to be known during, and through the instrumentality of, a feeling, there seems no *a priori* reason why a relation should not be that truth; or why, since the feeling has no proper subjective name of its own, we should hesitate to psychologise about it as "the feeling of that relation". There is no other way of talking about it at all.

But, though I have praised Mr. Spencer for being the first to use the phrase, I cannot praise him for having seen very deeply into the doctrine. Like most English psychologists, he tries to reduce the number of relations among things to a minimum; and in other passages says they are limited to likeness and unlikeness, coexistence in space and sequence in time. Whether this be true of *real* relations, does not here concern us. But it is certainly false to say that our *feelings* of relation are of only these four kinds. On the contrary, there is not a conjunction or a preposition, and hardly an adverbial phrase, syntactic form, or inflection of voice, in human speech, that does not express some shading or other of relation which we at some moment actually feel to exist between the larger objects of our thought. If we speak objectively, it is the real relations that appear revealed; if we speak subjectively, it is the stream of consciousness that matches each of them by an inward colouring of its own. In either case the relations are numberless, and no existing language is capable of doing justice to all their shades.

We ought to say a feeling of *and*, a feeling of *if*, a feeling of *but*, and a feeling of *by*, quite as readily as we say a feeling of *blue* or a feeling of *cold*. Yet we do not: so inveterate has our habit become of recognising the existence of the substantive parts alone, that language almost refuses to lend itself to any other use. In a later place we shall see how the analogy of speech misleads us in still other ways. The Empiricists have always dwelt on its influence in making us suppose that where we have a separate name, a separate thing must needs be there to correspond with it; and they have rightly denied the existence of the mob of abstract entities, principles and forces, in whose favour no other evidence than this could be brought up. But they have said nothing of the obverse error, which in psychology is just as bad, the error, namely, of supposing that where

there is *no* name no entity can exist. All *dumb* psychic states have, owing to this error, been coolly suppressed; or, if recognised at all, have been named after the substantive perception they led to, as thoughts "about" this object or "about" that, the stolid word *about* engulphing all their delicate idiosyncracies in its monotonous sound. Thus the greater and greater accentuation and isolation of the substantive parts have continually gone on.

But the worst consequence of this vicious mode of mangling thought's stream is yet to come. From the continuously flowing thing it is, it is changed into a "manifold," broken into bits, called discrete; and in this condition, approved as its authentic and natural shape by the most opposite schools, it becomes the topic of one of the most tedious and interminable quarrels that philosophy has to show. I do not mean to say that the "Associationist" manner of representing the life of the mind as an agglutination in various shapes of separate entities called ideas, and the Herbartian way of representing it as resulting from the mutual repugnancies of separate entities called *Vorstellungen*, are not convenient formulas for roughly symbolising the facts. So are the fluid-theories of electricity, the emission-theory of light, the archetype-theory of the skeleton, and the theory that curves are composed of small straight lines. But, if taken as literal truth, I say that any one of these theories is just as false as any other, and leads to as pernicious results. The Associationist and the Herbartian psychologies are both false and for one and the same reason, that what God has joined together they resolutely and wantonly put asunder. It would be calamitous for us, *à propos* of this matter, to get embogged in a metaphysical discussion about what real unity and continuity are. So I hasten to say that, by the continuity of the mental stream, all I here contend for is the absence of *separate* parts in it. It is for the assertors of separate parts to tell us what they mean by their separateness—a thing which (so far as I know) they have never done, except when the Kantians say it is something that nothing short of the agency of categories working under a transcendental Ego can overcome. But, be the definition of the separateness of the parts what it may, the burden of proving its existence lies with its friends. For the stream of our feeling is sensibly continuous, like time's stream.[1] This is surely the natural way of viewing it in

[1] Of course I speak only of tracts of it uninterrupted by sleep or other unconsciousness.

the first instance, and as an empirical fact. It presents itself as a continuum. It is true that by it are revealed to us a multiplicity of what we are pleased to consider separate *objects;* but it ought to be proved, not simply assumed, that the proper way of describing this fact is to say we have *a cluster of feelings* as numerous as the objects, and not to say that we have a *feeling of the cluster* of objects, however numerous these may be. The whole cluster is, if apprehended at all, apprehended in one *something.* Why not as well in one subjective modification or pulse of feeling, as in one Ego? Of course this *naïve* and natural way of describing the stream of knowledge ought not to prejudge the results of analysis made later on, and such analysis might show an Ego, and ever so much besides. But the ordinary plan of talking of a plurality of separate feelings from the first does prejudge the question, and abandon altogether the empirical and natural-history point of view.

And see the fruits of prejudging a matter like this, see the two schools at work!

The Empiricists, whether English or German, start with their pluralism of psychic entities, ideas or *Vorstellungen;* show their order and connexion with each other; and then treat this order—which in the first instance appears as an object visible only to the psychologist, and recorded by him as a sort of physical fact—as equivalent to a mental fact apprehensible from within the series, and resulting in a modification of the manner in which the entities feel *themselves.*

The Rationalists immediately protest that the conclusions in this account are not warranted by the premisses, that the ideas or *Vorstellungen,* assumed as distinct psychic factors out of which mind is to be built up, must be kept *pure* during all the processes through which the psychologist leads them; and, that if kept pure, the reciprocal order or relation in which they may happen objectively to exist, will in no degree affect their manner of *being felt.* If the idea red is the idea red, it will be just that idea and nothing farther, whether the idea green has preceded it or not. The bald external fact of its sequence to green and its contrast to green will not make it aware of itself *as a fact* so sequent and so contrasted. Such awareness, if realised at all, could only be realised by a third psychic entity, to which the green and the red in their purity should be alike external and yet alike present; be known as separate and contrasted, and yet have the separateness overcome and the

contrast removed by the way in which they lie together in the synthetic unity of the relation in which they are perceived. Such a third psychic entity cannot be a compound of the ideas themselves; for ideas cannot compound themselves, and if they could the result would be a merging into a "mean" and not, as here, a preservation of individuality intact; it cannot be a link or hyphen[1] or any sort of *intermediary* to make the ideas *continuous*, for that, though between, would be really external to, both ideas, and be merely a third feeling on its own account, as ignorant of the other two as they are ignorant of each other. Not any of these things can it be; not any fact of sensibility whatever, but a fact of an altogether higher order, to which all facts of sensibility are as the dust it treads on, an *act*, unnameable but by its own name, which is *intelligence*, inimitable in its function, which is *relating*, unique in its agent, which is the *Ego*, *self*, or *me*.

Both schools make then the same baseless hypothesis at the outset—the hypothesis that feeling is discontinuous by nature. The Kantians, Platonisers, or whatever one may please to call them, make another hypothesis to neutralise it, and so save the appearances.[2] The Sensationalists,

[1] Such "hyphens," it may be said in passing, seem to be the feelings of relation Mr. Spencer has in mind in the section of his *Psychology* to which reference was made a short time back.

[2] Our Hegelian Platonisers will of course protest that *their* withers are unwrung by this indictment, and that the Ego they contend for is no quasi-mechanical power working from without on detached materials, but only a name for the fact that what we have called the segments of the stream are consciously *for* each other. The question is a delicate one to decide. My own impression is that practically they are often tempted; and that the form the temptation takes is that of dropping into the old-fashioned psychic dualism. The Platonising mood is essentially dualistic, for it is essentially worshipful; and every object of worship needs the foil of a principle of evil to set off its lustre. Sentiency as a detached principle is therefore almost indispensable to this habit of philosophising. Every church needs its devil, and sense and its works are the devil of the Platonic congregation. The most amusing proof of the Platonic demand for a dualistic psychology is given by the always delicious Ferrier, who, in Proposition 10 of his *Institutes*, affirms Plato to have meant nothing more by his intelligible world than ordinary men mean by their sensible world; but who, instead of remaining satisfied with this promising reduction, immediately adds: "but then his sensible world must be moved a peg downwards. It must be thrust into the regions of nonsense. It must be called, as we have properly called it, . . . the nonsensical world, the world of pure infatuation, of downright contradiction, of unalloyed absurdity." Why? Not for any evidence he gives that such a world as this *exists*, any more *intra* than *extra mentem*; but apparently for the sole reason that an evil principle may never fail to be at hand, on which our higher nature may, when occasion requires, exert its powers of disdain.

unwilling to admit the supernatural principle, end with the philosophical melancholy of a Hume at the conclusion of his treatise, or with Mill's dismal confession of failure at the close of his chapter on the Psychological Theory of Mind.

But if we descend to the root of the trouble and deny the initial hypothesis, all difficulties and all need of discussion disappear at a stroke. And in truth there is no evidence whatever for supposing the pure atomic ideas of red and yellow, and the other elements of mental structure, to exist at all. They are abstractions, mere fictitious psychic counterparts to those elementary qualities of which we come to believe the real world is made up, but no one of them is an actual psychic fact. Whenever an elementary quality of the outer world is thought by us, the vehicle of the thinking is a feeling representing a highly complex object, that quality in relation with something else. Let us consider the mental stream and try to see what its constituents are like. Every one will admit that, as he thinks, a procession of varying objects, now simple, now complex in the extreme, passes before his attention, and that each one of these objects, whatever be its character, is accompanied by some sort of modification of his mental condition, of his subjective feeling, of the *wie ihm zu Muthe ist*, as Lotze would say. Even the advocates of an eternally identical Ego will confess that it must know its objects, *quâ* changing, in and by and through changing states, affections, acts, or attitudes, which are modifications, however superficial, of its identity. We can then represent, if not the whole, at least the changing part of the subjective stream by a continuous line, and if, as psychologists, we wish to isolate any portion of it for examination, we can symbolise that isolation by making cross-strokes. But, as Mr. Hodgson has so admirably shown, the cross-strokes do not pre-exist. They are "*artefacta*"; and the natural function of every segment of the line is to lead continuously into the next segment and carry consciousness along unbroken.

Now what differences obtain between the segments of the subjective stream—between the intervals scored off upon the line? Their differences of character must at least be as great as the differences of the objects they severally are aware of, or help to make known,—whichever form of expression one prefer; otherwise there would be a difference of perception without any subjective sign or symptom, which is absurd.

If then the fact known be the-sequence-of-green-to-red-

and-the-contrast-of-these-two-colours, the state of mind in which that fact comes to knowledge must be quite other than the state of mind in which either pure red or pure green comes to knowledge. In other words, if we start the stream with a feeling of pure red as its first segment, we must follow that up with a second segment which is a feeling of green-as-sequent-upon-the-red-and-contrasted-with-it; or, if we insist on having a "pure" feeling of green, we may let it come in the second segment, and then follow with a third in which the complex relation of the objects of the first two segments is perceived. In either case, the stream must contain segments that are not "pure" elementary feelings. It must contain feelings of qualities-in-relation as well as of qualities absolute. But these feelings do not cease for that to be consubstantial with the rest of the stream. They can all be figured in the same straight line. They involve no new psychic dimension, as when the transcendentalists, after letting a number of "pure" feelings successively go "bang," bring their *deus ex machinâ* of an Ego swooping down upon them from his Olympian heights to *make* a cluster of them with his wonderful "relating thought".

The only thing that can see the pure feelings as a cluster (if pure feelings there be) is a later segment of the stream, to which the "pure" segments and their content appear as objects. It is a peculiarity of the stream that its several parts are susceptible of becoming objects for each other. We cannot explain this peculiarity any more than we can explain any other cognition. As a matter of fact, *every* segment of the stream is cognitive, and seems to look at an object other than itself; and when this object turns out to be a past segment, we say the present one remembers it. The present one in our supposed case is the remembrance of something complex, but that does not keep it from being a single segment. All the arguments used by the transcendentalists to prove the real unity of the Ego, the oneness of the relating principle, apply perfectly to the case before us, and forbid us for an instant to suppose that the segment in which a complex fact is remembered is not just one feeling and no more. Whatever is known *together* is and must be known through a single modification of thought's stream. When I think the seven colours of the rainbow, I do not have seven thoughts of a colour, and then a thought of a bow; that would be eight thoughts. What I have is just one thought of the whole object. And the first reasonable word has yet to be said to prove that such a "thought" as this is not, when

considered in its subjective constitution, and apart from its cognitive function, also a "feeling," as specific and unique as the simplest affection of consciousness.

The demand for atoms of feeling, which shall be real units, seems a sheer vagary, an illegitimate metaphor. Rationally, we see what perplexities it brings in its train; and empirically, no fact suggests it, for the actual contents of our minds are always representations of some kind of an *ensemble*. From the dawn of an individual consciousness to its close, we find each successive pulse of it capable of mirroring a more and more complex object, into which all the previous pulses may themselves enter as ingredients, and be known. There is no reason to suppose that the same feeling ever does or can recur again. The same *thing* may recur and be known in an indefinite number of successive feelings; but does the least proof exist that in any two of them it is represented in an identical subjective state? All analogy points the other way. For when the identical thing recurs, it is always thought of in a fresh manner, seen under a somewhat different angle, apprehended in different relations from those in which it last appeared. And the feeling cognisant of it is the unitary feeling of it-in-those-relations, not a feeling of it-pure *plus* a second feeling, or a supernatural "thought," of the relations. We are so befogged by the suggestions of speech that we think a constant thing, known under a constant name, ought to be known by means of a constant mental affection. The ancient languages, with their elaborate declensions, are better guides. In them no substantive appears "pure," but varies its inflection to suit the way it is known. However it may be of the stream of real life, of the mental river the saying of Herakleitos is probably literally true: we never bathe twice in the same water there.

How could we, when the structure of our brain itself is continually growing different under the pressure of experience? For an identical feeling to recur, it would have to recur in an unmodified brain, which is an impossibility. The organ, after intervening states, cannot react as it did before they came.

If we are ever to be entitled to make psychological inferences from brain-processes, we should make them here in favour of the view I defend. The whole drift of recent brain-inquiry sets towards the notion that the brain always acts as a whole, and that no part of it can be discharging without altering the tensions of all the other parts. The best symbol for it seems to be an electric conductor, the amount of whose charge at any one point is a function of

the total charge elsewhere. Some tracts are always waning in tension, some waxing, whilst others actively discharge. The states of tension, however, have as positive an influence as the discharges in determining the total condition, and consequently in deciding what the *psychosis* shall be to which the complex *neurosis* corresponds. All we know of sub-maximal nerve-irritations, and of the summation of apparently ineffective stimuli, tends to show that *no* changes in the brain are really physiologically ineffective, and that presumably none are bare of psychological result. But as the distribution of brain-tension shifts from one relative state of equilibrium to another, like the aurora borealis or the gyrations of a kaleidoscope, now rapid and now slow, is it likely that the brain's faithful psychic concomitant is heavier-footed than itself, that its rate of change is coarser-grained, that it cannot match each one of the organ's irradiations by a shifting inward iridescence of its own? But if it can do this, its inward iridescences must be infinite, for the brain-redistributions are in infinite variety. If so coarse a thing as a telephone-plate can be made to thrill for years and never reduplicate its inward condition, how much more must this be the case with the infinitely delicate brain?

As, in the senses, an impression feels very differently according to what has preceded it; as one colour succeeding another is modified by the contrast, silence sounds delicious after noise, and a note, when the scale is sung up, sounds unlike itself when the scale is sung down; as the presence of certain lines in a figure changes the apparent form of the other lines, and as in music the whole æsthetic effect comes from the manner in which one set of sounds alters our feeling of another; so, in thought, we must admit that those portions of the brain that have just been maximally excited retain a kind of soreness which is a condition of our present consciousness, a co-determinant of how and what we now shall feel.

I am sure that this concrete and total manner of regarding the mind's changes is the only true manner, difficult as it may be to carry it out in detail. Associationism and Herbartianism are only schematisms which, the moment they are literally taken, become mythologies, and had much better be dropped than retained.[1]

[1] In an article on the "Association of Ideas" published in the *Popular Science Monthly* of New York for March, 1880, I have myself tried to reinterpret the various varieties of association as due to quantitative alterations in what is always an integral action of the brain.

Let me, by a few examples, bring the fact home for which I contend; let me show how a state of mind may be quite specific and at the same time quite inarticulate; let me exhibit some of the modifications that are probably due to nascent and waning excitements of the brain.

Suppose three successive persons say to us: "Wait!" "Hark!" "Look!" Our consciousness is thrown into three quite different attitudes of expectancy, although no definite object is before it in any one of the three cases. Counting out different actual bodily attitudes, and counting out the reverberating images of the three words, which are of course diverse, probably no one will deny the existence of a residual conscious affection, a sense of the direction from which an impression is about to come, although no positive impression is yet there. Meanwhile we have no names for the psychoses in question but the names hark, look, and wait.

Suppose we try to recall a forgotten name. The state of our consciousness is peculiar. There is a gap therein; but no mere gap. It is a gap that is intensely active. A sort of wraith of the name is in it, beckoning us in a given direction, making us at moments tingle with the sense of our closeness, and then letting us sink back without the longed-for term. If wrong names are proposed, this singularly definite gap acts immediately so as to negate them. They do not fit into its mould. And the gap of one word does not feel like the gap of another, all empty of content as both might seem necessarily to be when described as gaps. When I vainly try to recall the name of Spalding, my consciousness is far removed from what it is when I vainly try to recall the name of Bowles. Here some ingenious persons will say: "How *can* the two consciousnesses be different when the terms which might make them different are not there? All that is there, so long as the effort to recall is vain, is the bare effort itself. How should that differ in the two cases? You are making it seem to differ by prematurely filling it out with the different names, although these, by the hypothesis, have not yet come. Stick to the two efforts as they are, without naming them after facts not yet existent, and you'll be quite unable to designate any point in which they differ." Designate, truly enough. We can only designate the difference by borrowing the names of objects not yet in the mind. Which is to say that our psychological vocabulary is wholly inadequate to name the differences that exist, even such strong differences as these. But namelessness is compatible with existence. There are

innumerable consciousnesses of emptiness, no one of which taken in itself has a name, but all different from each other. The ordinary way is to assume that they are all emptinesses of consciousness, and so the same state. But the feeling of an absence is *toto coelo* other than the absence of a feeling. It is an intense feeling. The rhythm of a lost word may be there without a sound to clothe it; or the evanescent sense of something which is the initial vowel or consonant may mock us fitfully, without growing more distinct. Every one must know the tantalising effect of the blank rhythm of some forgotten verse, restlessly dancing in one's mind, striving to be filled out with words.

Again, what is the strange difference between an experience tasted for the first time and the same experience recognised as familiar, as having been enjoyed before, though we cannot name it or say where or when? A tune, an odour, a flavour sometimes carry this inarticulate feeling of their familiarity so deep into our consciousness that we are fairly shaken by its mysterious emotional power. But strong and characteristic as this psychosis is—it probably is due to the submaximal excitement of wide-spreading associational brain-tracts—the only name we have for all its shadings is "sense of familiarity".

When we read such phrases as "naught but," "either one or the other," "*a* is *b*, but," "although it is, nevertheless," "it is an excluded middle, there is no *tertium quid*," and a host of other verbal skeletons of logical relation, is it true that there is nothing more in our minds than the words themselves as they pass? What then is the meaning of the words which we think we understand as we read? What makes that meaning different in one phrase from what it is in the other? "Who?" "What?" "When?" "Where?" Is the difference of felt meaning in these interrogatives nothing more than their difference of sound? And is it not (just like the difference of sound itself) known and understood in an affection of consciousness correlative to it, though so impalpable to direct examination? Is not the same true of such negatives as "no," "never," "not yet"?

The truth is that large tracts of human speech are nothing but signs of direction in thought, of which direction we nevertheless have an acutely discriminative sense, though no definite sensorial image plays any part in it whatsoever. Sensorial images are stable psychic facts; we can hold them still and look at them as long as we like. These bare images of logical movement on the contrary are psychic transitions, always on the wing, so to speak, and not to be

glimpsed except in flight. Their function is to lead from one set of images to another. As they pass, we feel both the waxing and the waning images in a way altogether peculiar and a way quite different from the way of their full presence. If we try to hold fast the feeling of direction, the full presence comes and the feeling of direction is lost. The blank verbal scheme of the logical movement gives us the fleeting sense of the movement as we read it, quite as well as does a rational sentence awakening definite imaginations by its words.

What is that first instantaneous glimpse of some one's meaning which we have, when in vulgar phrase we say we "twig" it? Surely an altogether specific affection of our mind. And has the reader never asked himself what kind of a mental fact is his *intention of saying a thing* before he has said it? It is an entirely definite intention, distinct from all other intentions, an absolutely distinct state of consciousness therefore; and yet how much of it consists of definite sensorial images, either of words or of things? Hardly anything! Linger, and the words and things come into the mind; the anticipatory intention, the divination is there no more. But as the words that replace it arrive, it welcomes them successively and calls them right if they agree with it, it rejects them and calls them wrong if they do not. It has therefore a nature of its own of the most positive sort, and yet what can we say about it without using words that belong to the later mental facts that replace it? The *intention-to-say-so-and-so* is the only name it can receive. One may say that a good third of our psychic life consists in these rapid premonitory perspective views of schemes of thought not yet articulate. How comes it about that a man reading something aloud for the first time is able immediately to emphasise all his words aright, unless from the very first he have a sense of at least the form of the sentence yet to come, which sense is fused with his consciousness of the present word, and modifies its emphasis in his mind so as to make him give it the proper accent as he utters it? Emphasis of this kind is almost altogether a matter of grammatical construction. If we read "no more" we expect presently to come upon a "than"; if we read "however" at the outset of a sentence it is a "yet," a "still," or a "nevertheless," that we expect. A noun in a certain position demands a verb in a certain mood and number, in another position it expects a relative pronoun. Adjectives call for nouns, verbs for adverbs, &c., &c. And this foreboding of the coming grammatical

scheme combined with each successive uttered word is so practically accurate, that a reader incapable of understanding four ideas of the book he is reading aloud can nevertheless read it with the most delicately modulated expression of intelligence.

Some will interpret these facts by calling them all cases in which certain images, by laws of association, awaken others so very rapidly that we think afterwards we felt the very *tendencies* of the nascent images to arise before they were actually there. For this school the only possible materials of consciousness are images of a perfectly definite nature. Tendencies exist, but they are facts for the outside psychologist rather than for the subject of the observation. The tendency is thus a *psychical* zero; only its *results* are felt.

Now what I contend for, and accumulate examples to show, is that "tendencies" are not only descriptions from without, but that they are among the *objects* of the stream, which is thus aware of them from within, and must be described as in very large measure constituted of *feelings of tendency*, often so vague that we are unable to name them at all. It is in short the re-instatement of the vague to its proper place in our mental life which I am so anxious to press on the reader's attention. Mr. Galton and Prof. Huxley have made one step in advance in exploding the ridiculous theory of Hume and Berkeley that we can have no images but of perfectly definite things. Mr. Spencer has made another in overthrowing the equally ridiculous notion that, whilst simple objective qualities are revealed to our knowledge in feelings, relations are not. But these reforms are not half sweeping and radical enough. What must be admitted is that the definite images of traditional psychology form but the very smallest part of our minds as they actually live. The traditional psychology talks like one who should say a river consists of nothing but pailsful, spoonsful, quartpotsful, barrelsful, and other moulded forms of water. Even were the pails and the pots all actually standing in the stream, still between them the free water would continue to flow. It is just this free water of consciousness that psychologists resolutely overlook. Every definite image in the mind is steeped and dyed in the free water that flows round it. With it goes the sense of its relations, near and remote, the dying echo of whence it came to us, the dawning sense of whither it is to lead. The significance, the value, of the image is all in this halo or penumbra, that surrounds and escorts it,—or rather that is fused into one with it and has become bone of its bone

and flesh of its flesh; leaving it, it is true, an image of the same *thing* it was before, but making it an image of that thing newly taken and freshly understood.

What is that shadowy scheme of the "form" of an opera, play, or book, which remains in our mind and on which we pass judgment when the actual thing is done? What is our notion of a scientific or philosophical system? Great thinkers have vast premonitory glimpses of schemes of relation between terms, which hardly even as verbal images enter the mind, so rapid is the whole process. We all of us have this permanent consciousness of whither our thought is going. It is a feeling like any other, a feeling of what thoughts are next to arise, before they have arisen. This field of view of consciousness varies very much in extent, depending largely on the degree of mental freshness or fatigue. When very fresh, our minds carry an immense horizon with them. The present image shoots its perspective far before it, irradiating in advance the regions in which lie the thoughts as yet unborn. Under ordinary conditions the halo of felt relations is much more circumscribed. And in states of extreme brain-fag the horizon is narrowed almost to the passing word,—the associative machinery, however, providing for the next word turning up in orderly sequence, until at last the tired thinker is led to some kind of a conclusion. At certain moments he may find himself doubting whether his thoughts have not come to a full stop; but the vague sense of a *plus ultra* makes him ever struggle on towards a more definite expression of what it may be; whilst the slowness of his utterance shows how difficult, under such conditions, the labour of thinking must be.

In the light of such considerations as these, the old dispute between Nominalism and Conceptualism seems to receive the simplest of solutions. The Nominalists say that, when we use the word *man*, meaning *mankind*, there is in the mind nothing more than either a sound or a particular image, *plus* certain tendencies which those elements have to awaken an indefinite number of images of particular men, or of other images (verbal or not) which "make sense" with *mankind*, but not with any individual. These "tendencies" are, however, for them mere physical facts, and not modes of feeling the word as it is uttered. The Conceptualists, on the other hand, see perfectly well that at the very moment of uttering the word, or even before uttering it, we know whether it is to be taken in a universal or a particular sense; and they see that there is some actual present modification of the mind which is equivalent to an *understanding*

of the sense. But they call this modification, or conceptual character of the word, an act of pure intelligence, ascribe it to a higher region, and deem it not only other than, but even opposite to, all "facts of feeling" whatsoever.

Now why may we not side with the Conceptualists in saying that the universal sense of the word does correspond to a mental fact of *some* kind, but at the same time, agreeing with the Nominalists that all mental facts are modifications of subjective sensibility, why may we not call that fact a "feeling"? *Man* meant for *mankind* is in short a different feeling from *man* as a mere noise, or from *man* meant for *that* man, to wit, John Smith alone. Not that the difference consists simply in the fact that, when taken universally, the word has one of Mr. Galton's "blended" images of man associated with it. Many persons have seemed to think that these blended, or as Prof. Huxley calls them, "generic," images, are equivalent to concepts. But, in itself, a blurred thing is just as particular as a sharp thing; and the generic character of either sharp image or blurred image depends on its being felt *with its representative function*. This function is the mysterious *plus*, the understood meaning. But it is nothing applied to the image from above, no pure act of reason inhabiting a supersensible and semi-supernatural plane. It can be diagrammatised as continuous with all the other segments of the subjective stream. It is just that staining, fringe or halo of obscurely felt relation to masses of other imagery about to come, but not yet distinctly in focus, which we have so abundantly set forth.

If the image come unfringed it reveals but a simple quality, thing, or event; if it come fringed it reveals something expressly taken universally or in a scheme of relations. The difference between thought and feeling thus reduces itself, in the last subjective analysis, to the presence or absence of "fringe". And this in turn reduces itself, with much probability, in the last physiological analysis, to the absence or presence of sub-excitements of an effective degree of strength in other convolutions of the brain than those whose discharges underlie the more definite nucleus, the substantive ingredient, of the thought,—in this instance, the word or image it may happen to arouse.[1]

[1] The contrast is not, as the Platonists would have it, between certain subjective facts called images and sensations, and others called acts of relating intelligence; the former being blind perishing things, knowing not even their own existence as such, whilst the latter combine past and future, the north pole and the south, in the mysterious synthesis of their cognitive sweep. The contrast is really between two *aspects*, in which all mental

I wish that space were here afforded to show what, in most cases of rapid thinking, the fringe or halo is with which each successive image is enveloped. Often it cannot be more than a sense of the mutual affinity or belonging together of the successive images, and of their continuity with the main topic. This is the minimal perception of rational sequence, and can obtain between pure series of words, as well as between pictorial images, or between these and words. It gives us a lulling sense that we are "all right"; and when we have it, we let the image before us "pass" without demur. We feel that the topic is gradually being enriched, and that we are making towards the right conclusion. When we listen with relaxed attention, this

facts without exception may be taken; their structural aspect, as being subjective, and their functional aspect, as being cognitions. In the former aspect, the highest as well as the lowest is a feeling, a peculiarly tinged segment of the stream. This tingeing is its sensitive body, the *wie ihm zu Muthe ist*, the way it feels whilst passing. In the latter aspect, the lowest mental fact as well as the highest grasps some bit of universal truth as its content, even though that truth were as relationless a matter as a bare unlocalised and undated quality of pain. From the cognitive point of view, all mental facts are intellections. From the subjective point of view all are feelings. Once admit that the passing and evanescent are as real parts of the stream as the distinct and comparatively abiding; once allow that fringes and haloes, inarticulate perceptions, whereof the objects are as yet unnamed, mere nascencies of cognition, premonitions, awarenesses of direction, are thoughts *sui generis*, as much as articulate imaginings and propositions are; once restore, I say, the *vague* to its psychological rights, and the matter presents no further difficulty.

And then we see that the current opposition of Feeling to Knowledge is quite a false issue. If every feeling is at the same time a bit of knowledge, we ought no longer to talk of mental states differing by having more or less of the cognitive quality; they only differ in knowing more or less, in having much fact or little fact for their object. The feeling of a broad scheme of relations is a feeling that knows much; the feeling of a simple quality is a feeling that knows little. But the knowing itself, whether of much or of little, has the same essence, and is as good knowing in the one case as in the other. Concept and image, thus discriminated through their objects, are consubstantial in their inward nature, as modes of feeling. The one, as particular, will no longer be held to be a relatively base sort of an entity, to be taken for granted, whilst the other, as universal, is celebrated as a sort of standing miracle, to be adored but not explained. Both concept and image, *quâ* subjective, are singular and particular. Both are moments of the stream which come, and in an instant are no more. The word universality has no meaning as applied to their psychic body or structure, which is always finite. It only has a meaning when applied to their use, import, or reference to the kind of object they may reveal. The representation, as such, of the universal object is as particular as that of an object about which we know so little that the interjection "Ha!" is all it can evoke from us in the way of speech. Both should be weighed in the same scales, and have the same measure meted out to them, whether of worship or of contempt.

vague perception that all the words we hear belong to the same language and to the same special vocabulary in that language, and that the grammatical sequence is familiar, is practically equivalent to an admission that what we hear is sense. But if an unusual foreign word be introduced, if the grammar trip, or if a term from an incongruous vocabulary suddenly appear, such as "rat-trap" or "plumber's bill" in a philosophical discourse, the sentence detonates, as it were, we receive a shock from the incongruity, and the drowsy assent is gone. The feeling of rationality in these cases seems rather a negative than a positive thing, being the mere absence of shock, or sense of discord, between the terms of thought. Provided only the right substantive conclusion be reached, the train of images that lead us to it is comparatively indifferent. They may be purely verbal, they may be mixed verbal and pictorial, or they may not be verbal at all, as in the interesting account by Mr. Ballard of his deaf-mute philosophising. They may be what they please;—but if they only bring us out right, they are rational operations of thinking.[1]

Let us now pass to another introspective difficulty and source of fallacy, different from the one hitherto considered, but quite as baleful to psychology. I mean the *confusion between the psychologist's standpoint and the standpoint of the feeling* upon which he is supposed to be making his report.

The standpoint of the psychologist is external to that of the consciousness he is studying. Both itself and its own object are objects for him. They form a couple which he sees in relation, and compares together, and it follows from this that he alone can verify the cognitive character of any mental act, through his own assumed *true* knowledge of its object. Now he may err either by foisting his own knowledge of the object into the feeling, and representing the latter as aware of it just as he is. Or he may err by representing the feeling as if it felt *itself* to be what he knows it to be. Thus the psychologist may misrepresent the feeling in either of two ways, or in both.

[1] Hegel's celebrated dictum that pure being is identical with pure nothing, results from his taking the words statically, or without the fringe they wear when in a context. Taken in isolation, they agree in the single point of awakening no sensorial images. But taken dynamically, or as significant,—as *thought*,—their fringes of relation, their affinities and repugnances, their function and meaning, are felt and understood to be absolutely opposed.

I may mention immediately that the doctrine of the post-Kantians, that all knowledge is also self-knowledge, seems to flow from this confusion. Empirically, of course, an awareness of self accompanies most of our thinking. But that it should be needed to *make* that thinking "objective" is quite another matter. "Green-after-red-and-other-than-it" is an absolutely complete object of thought, ideally considered, and needs no added element. The fallacy seems to arise from some such reflection as this, that since the feeling *is* what it feels itself to be, so it must feel itself to be what it *is*, namely, related to each of its objects. That the last *is* covers much more ground than the first, the philosopher here does not notice. The first *is* signifies only the feeling's inward quality; the last *is* covers all possible facts *about* the feeling, relational facts, which can only be known from outside points of view like that of the philosopher himself.[1]

But the great *Tummelplatz* of the confusion of the standpoints is the question of perception, and the whole problem of the manner in which the object is present to the mind in cognition. Distinguishing the standpoints explicitly leads us here to a very simple solution; and at the same time it clears up the subjective constitution of great tracts of our thinking, on which introspection hitherto has thrown but the most insufficient of lights.

The psychologist, studying this question, stands, as aforesaid, outside of the cognitive state-of-consciousness he is analysing, and compares it with its supposed object, which he thinks he *really* knows. Let us call the object as known to him "the reality". Then the question is: Is the reality directly present to the feeling under observation, or is it represented by a mental substitute? And, if the latter: Is the representative *like* the reality, a copy of it, or is it not?

A word about the back-bone of the human mind, the psychological principle of identity, will help us here. Logic and ontology both have their principles of identity, but the psychological principle is different from either, being a highly synthetic proposition, which affirms that different mental acts can contemplate, mean to contemplate, and know that they mean to contemplate, the same objective matter, quality, thing or truth. The notion of sameness-with-something-else is in fact one of the "fringes" in which a substantive mental kernel-of-content can appear enveloped. The same reality,

[1] The criticisms of the late Professor T. H. Green on empiricist writers seem to me to be so saturated with this confusion of the two standpoints, that their in many respects excellent teaching sadly loses its effectiveness.

as we call the kernel, can, then, by virtue of this principle, be thought in widely differing ways. Some of these ways are complete ways, the others are relatively incomplete ways. As a rule, the more substantive and sensational a way is, the more complete we usually suppose it to be.

When now, as psychologists, we undertake to describe any one of these ways of thinking, we call them all "thoughts *about* that reality," ticketing them with its substantive name. For instance, whether I say "I write with steel pens," having such a pen in my hand, and seeing it move over the paper; or whether I say "I write with them," in a conversation whose general topic is steel-pens; or whether I say "Quills are better"; or whether I simply *intend* to say any one of these things, but no image verbal or other arises, because my attention is suddenly diverted;—whichever of these facts occur, most people would describe my mental state as "thought about steel-pens". They would name a substantive kernel, and call that the "object" of each of the several thoughts. And the professed psychologists would agree with them. But the psychologists would then begin, as the laymen do not, to wonder how thought *can* be "about" an "object," which may be present to the thought neither in its own sensible shape, nor by its name, nor even by a pronoun, or any sort of an articulate representative whatever—for these seem to be the predicaments of the last three thoughts about the pen. And the psychologists would then after their several fashions spin ingenious theories as to the typical and normal mode of "presence" to the mind of the "object" of its thoughts; each one finding in some *one* of the cases observed a warrant for his own peculiar views.

The whole puzzle arises from the wrong mode of describing the several cases, by which the layman and the psychologist alike substitute the "reality," which is their own object, and which happens to be also the substantive kernel of the object of the first thought instanced, for the several objects of the other three thoughts. Clearing up our ideas of "the object" brings us out of the wood.

The object of any thought is its entire content or deliverance, neither more nor less. It is a vicious use of speech to take out a substantive kernel from its content and call that its object; and it is an equally vicious use of speech to add a substantive kernel not articulately included in its content, and to call that its object. Yet either one of these two sins we commit, whenever we content ourselves with saying that a given thought is simply "about" a certain topic, or that that topic is its "object". The object of my thought in the

previous sentence, for example, is not simply "the sins we commit," nor "the sins we commit as psychologists," nor "the sins we commit as psychologists naming the objects of thoughts". Its object is nothing short of the entire sentence; and if we wish to speak of it substantively, we must make a substantive of it by writing it out in full with hyphens between all its words. Nothing short of this can possibly name its delicate idiosyncracy. And if we wish to *feel* that idiosyncracy we must reproduce the thought as it was uttered, with every word fringed and the whole sentence bathed in that original halo of obscure relations, which, like an horizon, then spread about its meaning.

In this "fringing" may be included a feeling of *continuity with the previous thoughts*, of there having been no breach of topic, but of the main interest and problem being unchanged. This would justify us psychologists in saying that the "topic" of the successive thoughts was still steel-pens, even although steel-pens as substantive images had long ceased to be present, and were not represented verbally even in pronominal form.

But can anyone pretend, in strict psychology, that the "topic" these incomplete thoughts are said to be "of" or "about," stands in the same relation to the thoughts themselves as that in which the "reality," steel-pens, stood to the complete thought we began with? Does it hold the same relation to them that the steel-pen holds to me, as I now take it in my hand and watch it write? Most assuredly not: the so-called topic is the *immediate object* of the complete thought, and of my thought. Each of the incomplete thoughts, whilst we say it is "of" that same topic, has all the time its *own* immediate object, which stands in the place the topic stands in in the complete thought and in mine. Exactly what that object is, is a question very hard to answer introspectively, when the thought is incomplete and transitive, and it has sped, and its light is out. We may safely say, however, that *continuity-with-the-complete-thought*, or with whatever previous thought first brought the topic on the *tapis*, enters *into* the object of each of the incomplete thoughts, so far as they can be truly said to be "about" that topic. They do not envelop the topic in a substantive manner, they are thrown *at* it merely. Their relation to it is that of a sense of the direction in which it lies. That directions unmarked by explicit and substantive termini are among the most frequently discriminated objects of our thinking, is a point that needs no proof. When a child, asked for the reason of some-

thing, says simply "*Because* . . . ," and is satisfied; or when a man, after hearing a long plan, says "No! we cannot do it *so*, . . . "; each of them draws a line of definite relation between some substantive thing and a term not realised in the thought, but hidden out of sight and towards which the thinker merely points or looks.

Let us continue to use the name "topic" to designate the substantive reality *towards* which each of the incomplete thoughts looks, and to some conclusion from or about which the whole procession of them will probably lead. We, as outside observers of the thoughts, knowing them in this their function of being connected with it, have a perfect right to say that they are "thoughts concerning this topic". But we are absolutely wrong if we say that their *object* is the topic, or that the topic is *present* to them, or that they are in any *direct* way "of" or "about" it. We then not only thrust into them *our* object, and the object of another thought with which they are only remotely connected; but we by the same act excuse ourselves from seeking—and if we chance to seek, prevent ourselves from finding—what their own immediate objects really are.

Every thought has its *own* object immediately present to it; and the only question in each particular case is as to *what* that object is. For the traditional psychologists, however, who say that many differing thoughts may have the same object, the great question is, *how* is that object present to them all, since they seem to resemble each other as little as they do. And the difficulties of answering that question are such that we find as clear-headed writers on the whole as Reid and Stewart throwing up the sponge. Even in sense-perception, they say, the reality is no more represented by our feeling than it is in our most remotely and indirectly referential thought. There is never the least resemblance or consanguinity between the thing we know and the feeling's content. The latter is merely a signal to awaken the *knowledge* of the thing, which knowledge is an act of pure intelligence, of which absolutely nothing can be said, and whose connexion with the signal is for us an arbitrary and unintelligible fact.

Now the truth is that in certain selected cases the signal *is* the reality. In complete sense-perception, for example, we normally believe that we see the latter face to face. Of what we have called the incomplete thoughts, however, this reality is only the "topic"; that is, a whole procession of them may occur without the reality's features being once directly present therein; but yet be a procession that takes

note of its existence after a fashion, and is aware of itself *as* a procession leading to or from it as a terminus.

That there is a semblance of paradox here cannot be denied. Grant the procession to know its own existence as a procession; still how can it know itself as a procession to or from *that* reality,—or even in the direction of that reality,—without also knowing that reality itself immediately and face to face? But this apparent paradox comes from the confusion of the incomplete thought's standpoint with our own. We think the reality must be known in the procession as it is known to us, when—naming the procession—we call it a procession to or from that reality,—also explicitly naming and imagining the latter too. *We* cannot *name* the topic without the reality becoming a direct present object to *us*. But the procession can and does feel its topic in an entirely different way. To substitute our way for this way is a complete falsification of the data into which, as psychologists, we are supposed to inquire. What the actual way is, is excessively difficult to make out, on account of the elusive character of those transitive and relational elements of subjectivity on which we commented at the outset of our essay, and of which the procession is mainly composed. Considering our feeling of a tune may make the matter a little clearer. A tune is a processional feeling, in which the idea of the whole is present to each note, so far as to tinge or "fringe" that note differently from the way in which it finds itself tinged or fringed in any other tune. Now the "topic" is to each incomplete thought in the procession what the "tune" is to each note. *We* have to name the topic and the tune explicitly whenever we speak of them; but as we do not pretend that each note in the tune names and hums the entire tune on its own account, at the same time that it hears itself; so we ought not to pretend that each thought in the procession names and knows the topic of the procession in the same articulate and explicit way that we do, when we try to define just which procession it is.

What *sort* of a feeling each thought in the procession has of which procession it is, is as much a mystery for us to-day as what sort of a sense each note has of the tune it is in. These are the problems for the introspection of the future. I have said enough to show, I hope, their difficulty, and some of the causes on which that difficulty depends,—the main one being that our thought is a teleological organism, of which large tracts exist only for the attainment of others; and that our perception of these others, which were called

its substantive parts, tends to spread itself everywhere in our reflective memory and obscure and replace the perception of the more evanescent parts that intervened. I hope I have made the reader feel how crude a thing that is which even our best text-books seek to pass off as "analysis of the human mind," and how deeply our current opinions on the subject demand revision.[1]

[1] One word on my attitude towards the Ego may avert misconception. All I have urged against it in this article, is against it in its alleged exclusive capacity of "relating" agent. I have said there is no need of an agent to relate together what never was separate, and that it is an unnecessary hypothesis for explaining *cognition*. That feelings can be "for" each other when they do not belong to the same Ego, is proved whenever one person knows what another person thinks. That their being "for" each other when they do belong to the same Ego, is not *a consequence* of such belonging, —but may be more simply formulated by saying that each segment of the stream has its objects, and that the earlier segments become objects for the later,—is what I have sought to show. If this "solidarity" of the stream of feelings is all that is meant by the Ego,—if the Ego is merely a name for that fact,—well and good,—we seem agreed! For myself, however, there are certain material peculiarities about the way in which segments of the stream are *for* each other when they belong to the *same* Ego, that call for a deeper study of the question, and rather lead us to reserve the word Ego until they are quite cleared up. What is the difference between *your* feeling cognised by me, and a feeling expressly cognised by me as *mine?* A difference of intimacy, of warmth, of continuity, similar to the difference between a sense-perception and something merely imagined—which seems to point to a special *content* in each several stream of consciousness, for which Ego is perhaps the best specific name.

II.—LIFE AND MECHANISM.[1]

By J. S. Haldane.

It is a proposition very generally accepted by physiologists, that all organic processes could, had we means sufficiently delicate to investigate them, be reduced to series of causes and effects; or, which comes to much the same, that all that ultimate analysis can reveal in these processes, is matter acting as a 'vehicle' of energy. The present article will be devoted to an examination of this proposition in the light of biological facts, and to an endeavour to show that, however great a relative value it may have, it is in fundamental respects inconsistent with these facts.

I shall assume at starting that the proposition just referred to is true, and, as a consequence, use the language of physical science in referring to biological phenomena. I shall then proceed to show that the consistent application to these phenomena of physical conceptions leads to difficulties from which the only escape lies in substituting conceptions and language entirely different, and whose nature will appear in the course of the discussion.[2]

For physical science a steam-engine is an arrangement of matter into which energy passes from surrounding objects, and out of which, in a different form, the same energy is returned. It will therefore serve the purposes of our discussion to compare a steam-engine so conceived with a living organism. Energy enters the organism in the form of the potential energy which is present in a chemically unstable mixture of oxygen and various forms of food. Similarly the potential energy of an unstable mixture of oxygen and coal enters a steam-engine. From both the steam-engine and the organism this same energy is given off again in the form of heat and mechanical motion. So far the analogy between the steam-engine and the organism is complete.

[1] The greater part of this article is based on a paper read before the Edinburgh Royal Medical Society, March 9, 1883.

[2] In reviewing *Essays in Philosophical Criticism* (*Nature*, Aug. 23, 1883), Mr. Romanes objects to discarding the conception of cause and effect as applied to the phenomena of life. It is no doubt true that physiology, in so far as it is an abstract science, ought not to regard life under any other conception. In the sequel, however, it will be shewn that there is an absolute necessity for discarding the conception of cause and effect if we are to attain to an idea of the nature of life which is not both abstract and self-contradictory.

But let us carry our inquiry a little further. The energy which leaves the machine is dissipated on the surroundings in a manner which, so far as our conception of the machine is concerned, has no reference to the future maintenance of its mechanism in action. When the fuel is finished, the machine cannot replace it, but simply runs down. If, now, we turn to the organism, we find that the energy which leaves it is by no means dissipated at random on the surroundings. On the contrary it is a characteristic fact that a part at least of that energy is so expended as directly or indirectly to bring about the maintenance of the organism in activity. The surroundings, in fact, are so acted on as to be caused to direct to the organism a supply of potential energy sufficient to make up for what has been spent. A man, for instance, will always direct his labour into some productive channel. Thus in agriculture his labour is expended in so acting on the land as to cause it to yield to him various forms of food. By producing clothing and erecting shelter for himself he in a less direct manner causes his surroundings to conduce towards maintaining his body in activity. Similar facts may be observed in the case of any of the lower organisms, and are characteristic of everything living.

Here, then, we have reached something in which an organism differs from an ordinary machine. There is nothing in all this, however, to lead us to suppose that organisms are not machines; though it is necessary to assume that they are so constructed as automatically to supply themselves with food and perform other actions necessary to their being kept in motion. It is, for instance, quite easy to suppose that the Paramœcium is such a machine. The Paramœcium, which is one of the Infusoria, has a ciliated channel passing a short way into its interior. The cilia move in such a way as to direct a current of water, and whatever it may contain, into and out of this gullet. Nutritive particles which are in this way brought within reach are seized upon and used as food. It is quite possible, surely, to imagine a machine constructed on the model of the Paramœcium, and renewing its supply of fuel in the same way as the Paramœcium renews its supply of food. And in the case of higher organisms it seems reasonable to suppose that the difference is only a difference in the degree of complication and delicacy of the mechanisms involved.

We may, for instance, compare the method by which the Paramœcium procures its food with that employed by a frog. The frog lives to a large extent on flies. These it catches by jumping at them and at the same time darting out its

tongue. There appears to be every reason to suppose that in the case of the frog we have to deal with a mechanism, just as in the case of the Paramœcium; though in the frog this mechanism must be assumed to be much more delicate and complicated. The step from the frog to man is scarcely so great as that from the Paramœcium to the frog. So far, then, as the facts have been examined, they seem entirely consistent with the hypothesis that the organism is only a machine so peculiarly constructed as to be capable of keeping itself in action automatically.

But there is another point of difference between an organism and an ordinary machine. This lies in the power which the organism possesses of adapting its actions to unusual circumstances. What I mean is well illustrated by the experiments which Darwin made with a view to testing the intelligence of earthworms.

Earthworms are in the habit of stopping up the mouths of their burrows with leaves, leaf-stalks, or other convenient materials. It is evident that some leaves can be most conveniently dragged into a burrow by their tip, while in the case of others of a different shape it will be more convenient to make use of some other part, as the stalk. Consequently, in laying hold of one part rather than another, the animal may display more or less intelligence. In order to exclude the hypothesis that a special inherited instinct determines the worms to select the most convenient part of each special kind of leaf, Darwin tested them with leaves of foreign trees, and triangles of paper. At the end of the account of his observations he says (*Vegetable Mould*, &c., p. 98):—

> "To sum up, as chance does not determine the manner in which objects are drawn into the burrows, and as the existence of specialised instincts for each particular case cannot be admitted, the first and most natural supposition is that worms try all methods until they at last succeed; but many appearances are opposed to such a supposition. One alternative alone is left, namely that worms, although standing low in the scale of organisation, possess some degree of intelligence. This will strike every one as improbable; but it may be doubted whether we know enough about the nervous system of the lower animals to justify our natural distrust of such a conclusion. With respect to the small size of the cerebral ganglia, we should remember what a mass of inherited knowledge, with some power of adapting means to an end, is crowded into the minute brain of a worker-ant."

In these experiments the worms display intelligence in the fact that they do not mechanically employ one constant means in dragging objects into their burrows, but tend to use just the particular means suited to the particular circumstances of each case. That is to say, the intermediate steps in the process are in each particular case determined with reference to the final result. Hence we cannot simply say

that the result is determined by, or is the effect of, the process, for it appears to be just as true that the process is determined by the result. Now this being so, it appears to me that the analogy between the nervous system and a machine can no longer by any possibility be held to. The action of a machine is determined from behind. That is to say, every one of its movements can be traced back to a cause antecedent in time, and in this way explained. But this is not true of the movements which we have been considering in the case of the earthworm; for the apparent cause appears to be as much effect as cause of the apparent effect. I shall, however, return to this matter presently.

Such behaviour as that of the earthworm in these experiments is only one example of a kind of behaviour which may be observed in the case of other organisms. Since the word 'intelligent' carries with it a reference to consciousness, I shall call this kind of behaviour 'purposive' rather than 'intelligent'.

But it is not only where the nervous system is concerned that purposive behaviour may be observed; for such behaviour is evident enough in the case of other tissues. Attention has been drawn elsewhere[1] to the significance of what occurs in the healing of wounds, especially among the lower animals. And it was pointed out that in the case of, say, the reproduction, after amputation, of the limb of a newt, it is not possible to explain on mechanical principles the behaviour of the cells which are concerned in the process. As the phenomena referred to may be passed over without their significance being realised, it may be well to indicate more particularly in what respects they are significant.

Let us suppose that the limb is amputated half way up the thigh: the cells near the surface of the stump work together by dividing and developing in various ways, so as to reproduce the limb. Supposing now that the line of amputation is oblique or irregular, this does not affect the result. The cells concerned in the process allow for the irregularity. If, for instance, two-thirds of the extensors of the knee, half of the thigh bone, and a third of the hamstring muscles, are amputated, the missing part of each of these structures is nevertheless reproduced in its proper proportion. Now were the behaviour of the cells determined by anything of the nature of mechanisms within them, we should find that they did their work in the same way as machines do their work—that is to say, blindly. We should,

[1] *Essays in Philosophical Criticism*, p. 54.

in fact, find that, when placed in circumstances not previously met with by them, and therefore not provided for, they would fail to act so as to attain the end which conduces, under these circumstances, to maintaining the organism in action. This, however, is just what these cells do not do; since in whatever way the injury to the limb may be varied, they adapt their behaviour to the circumstances of the case, and attain the end of reproducing the limb. In the process of healing, then, we meet with facts similar to those already discussed in the case of the earthworm.

The two cases which I have taken are of course only isolated examples of phenomena which prevail more or less throughout the whole organic world, and to which phenomena as a whole the above analysis may be made to apply. That analysis enables us to conclude that the purposive behaviour displayed in the attainment by organisms of such ends as the reproduction of a newt's limb, or the stopping up of an earthworm's burrow, cannot be due to the mere action of neuro-muscular or intracellular mechanisms.

This conclusion does not, however, carry with it an assertion of the existence within the organism of phenomena altogether different from those outside of it. It is quite intelligible that a stone falls back again to the earth, in whatever direction it may have been propelled in the air. The attraction of the earth overcomes the force which propels the stone away, in whatever direction that force may be. The propelling force may be varied in direction to any extent, yet the stone reaches the earth with certainty. Now if we do not make the unmeaning assumption that an intelligence which is supernatural influences, nevertheless, the physical world, it is necessary to suppose that, in the case of the class of phenomena which we have been considering, there must be some explanation similar to that of the behaviour of the stone. When an earthworm stops up its hole in spite of such disturbing influences as were introduced by Darwin, its behaviour is analogous to that of a stone in reaching the ground in whatever direction it may have been originally propelled. And in order to render the movements of the worm intelligible we must suppose it to be in some way influenced by a force of attraction. But it is at least clear that no *direct* force of this sort guides the worm in its movements relatively to the burrow and the materials used; and the like is true of other instances of purposive action. This, however, does not exclude the existence of a connecting force which acts in an indirect and

roundabout manner; and the only escape from the difficulty lies in assuming that there is such a force. Let us consider more particularly how this force must act.

When an earthworm fills up its burrow it is not performing an action unconnected with other events in its life. The filling up of the burrow is determined with reference to further ends, in the same sense as that in which the seizing of the apical portion of one of Darwin's triangles is determined with reference to the end of filling up the burrow. And if this reasoning be followed out, it leads to the conclusion that all the actions of the worm can be regarded as determined more or less directly with reference to one comprehensive end—the end, namely, of so influencing the surroundings as to cause them to direct to the animal a supply of energy sufficient to make up for what has been spent by it.

From this it follows that the force whose existence we found it necessary to assume for the explanation of the movements of the worm in filling up its burrow—that this force is subordinate to a force which connects generally the organism and its surroundings. Since the hypothesis of mechanisms within the organism fails us, it is only by assuming the existence of such a force that we can explain the determination with reference to the one comprehensive end mentioned above of all the actions of the animal. This force must be conceived as acting from the surroundings in all sorts of indirect ways on the parts of the organism, so as to cause them to act in their turn on the surroundings. In the same way a force is thought of as acting from the earth so as to cause a stone thrown into the air sooner or later to act on the earth by striking against it. Not only, however, do surroundings and organism successively act and react on one another; but the organism, as we have seen, reacts on the surroundings in a certain particular manner—in such a manner, namely, as to bring it about that the surroundings act again on the organism in transferring to it energy contained in food. In other words, the surroundings determine the organism to react upon them in a certain manner, but this manner of reaction is determined with reference to the organism itself. Now what is implied in saying that this manner of reaction is determined with reference to the organism itself, is that in being made to react on the surroundings the organism is determined by its own influence acting through the surroundings. The surroundings in acting on the organism are therefore at the same time acted on by it. The organism is thus no more determined by the sur-

roundings than it at the same time determines them. The two stand to one another, not in the relation of cause and effect, but in that of reciprocity.

What is true of the organism and its surroundings looked at as wholes in relation to one another, applies of course equally when the organism is looked at as made up of a number of separate parts. These parts stand to one another and to the surroundings, not in the relation of cause and effect, but in that of reciprocity. The parts of an organism and its surroundings thus form a system, any one of the parts of which constantly acts on the rest, but only does so, *quâ* part of the system, in so far as they at the same time act on it.

This general conception of the nature of life does not in any way postulate the existence of a vital force, the action of which is unknown to physiology. All that is meant is that when the processes which physiology investigates, one by one, are looked at as a whole, in their relation to one another, these processes must be regarded under the general conception, or category, of reciprocity, rather than under that of cause and effect. It is therefore irrelevant to point to isolated physiological phenomena, and say that they, at any rate, are nothing more than series of causes and effects. They participate in the life of an organism; and when they are looked at as doing so they must be brought under the category of reciprocity. To illustrate this point let us take the case of the transmission, from the cells of one of the motor areas of the cerebral cortex, of nervous impulses to a group of muscles, and the consequent movement of the corresponding limb. If the phenomena in question be looked at by themselves, they present nothing more than a series of causes and effects. But when these same phenomena are looked at in relation to the whole life of the animal, it is altogether different. For the movement of the limb has some purpose or other in relation to the nutrition of the animal; and this implies, as we have seen above, the general conception of reciprocity.

It might be said that this conception of reciprocity must, after all, be ultimately subordinated to that of mechanism. For the potential energy contained in the food of an organism has its source in the heat of the sun. And the energy expended by the organisms on its surroundings is all finally dissipated. Life can thus at the most be nothing more than an eddy in a stream of energy passing from the sun to be dissipated in surrounding space.

Now this objection derives its apparent force from a tacit assumption, of the nature of which it is well to be clearly

aware. We have already seen why a living organism and its surroundings must be regarded as a system of parts reciprocally determining one another. But when the sun is treated as a source of energy and as such considered in its relation to life, it is really taken for granted at the outset that life is a mechanical process. For if one phenomenon is brought under a certain category, all other phenomena are potentially brought under the same category. It is not possible without contradiction to regard phenomena under two categories simultaneously.[1] Therefore the form of the above objection precludes the possibility of an answer to it. All that can be said with regard to it is that in relation to the essential characteristics of life, the conception of the sun as a source of energy may be shown to be self-contradictory, in the same way as was done with the conception of the organism as a machine. The range of application of a category cannot be limited in space; so that in bringing the phenomena of life under the category of reciprocity we do not limit the application of this category to a certain portion of space, leaving an outside region in which the category of cause and effect holds undisputed sway. Hence we may regard the sun as participating, inasmuch as it is a part of the surroundings, *in* the system of life of an organism, but not as acting *on* that system from without.

It follows from this that the surroundings of an organism are to be looked on, not merely as objects in ambient space which may act on, or else be acted on by, the organism, but as these objects in so far as they participate with other objects in forming with the organism a system whose parts reciprocally determine one another. The mode of life of organisms on the earth, for instance, is suited to the present condition of the solar system, and so indirectly to conditions beyond. But it is not enough simply to say that these conditions modify the life of terrestrial organisms, since that life actively adapts itself to them. The relation is that of reciprocal action: not merely that of cause and effect.

So long as it is allowed to appear that, apart from a consideration of life, the category of cause and effect has an absolute validity of its own, the foregoing reasoning will seem incomplete in some sense. For the world as it is for physical science—the world of causes and effects—seems to have no definite relation to the same world regarded, in relation to life, under the category of reciprocity. The task undertaken in this article is not, however, to inquire how

[1] This point is worked out in *Essays in Philosophical Criticism*, ii.

far a world of causes and effects is real. All that has been undertaken is to show that the ordinary conceptions of physical science are insufficient when applied to the phenomena of life, and that other conceptions must be substituted.

The result of our inquiry up to this point has been to show that biological phenomena are to be interpreted under the category of reciprocity rather than under that of cause and effect. But we shall see that the category of reciprocity has after all only a relative appropriateness, there being essential characteristics of life which it does not express.

In the case of a system whose parts reciprocally determine one another, each part, though determined by and determining the rest of the system, has yet a certain independence of its own. The fact of its taking part in the system is not essential to its own existence, since it has numerous properties which belong to it apart from its relation to the system. Now in the case of the system of life the parts are not thus independent. They are determined, not only as regards their reciprocal action on one another, but also as regards what is inherent in the parts themselves of a system whose parts reciprocally determine one another. Size, shape, consistence, and other properties which we think of as inherent in a thing itself, as well as what relates to its determination of and by other things, are determined, in the case of what is concerned in the life of an organism, with reference to that life as a whole. For instance, it is not enough to say that the action of a limb at the same time determines and is determined by the rest of the organism and by its surroundings. For the size of the limb, its shape, structure, and other properties such as ordinarily appear to us to inhere in a thing itself, apart from its relation to other things, are determined with reference to the function which the limb performs.

Let us consider again the phenomena which may be observed in connexion with the amputation of one of the limbs of a newt. From the previous discussion we gathered that the characteristic behaviour of the cells concerned in the reproduction of the limb must remain unintelligible unless the life of the animal be brought under the general conception of reciprocity. But it is not only the movements of the cells relatively to one another that have to be explained, but also the assumption by them of properties which inhere in themselves, such as certain sizes, shapes, and consistencies. For the cells which take part in the process assume in each case a certain size, consistence, and shape suited to the functions which they severally have to perform. Certain

cells, for instance, assume the form, consistence, size, and colour suited to the function which the contractile pigment-cells beneath the epidermis have to perform, while others assume the properties required for muscle-cells. Now here the conception of reciprocity fails us. For in a system of parts which reciprocally determine one another, each part, as we have seen, is independent as concerns its own individual properties. We regard the planets in the solar system, for example, as reciprocally acting on one another, but yet as each independent of the system so far as concerns such properties as shape and consistence. In the case, however, of life, the fact of the determination in a certain way of the individual properties of the parts has to be explained, as well as the behaviour of the parts relatively to one another.

It is common to account for the fact that the properties of any part of an organism are adapted to the function which they perform, by supposing that they have been made so by forces acting from outside of the life of the organism. These forces are found, either in a God existing independently of the physical universe, or in the environment of organisms. Thus it is argued that the parts of organisms are constantly undergoing slight modifications under the influence of the environment; that some of these modifications give the organism which has undergone them an extra chance of survival; and that, as offspring resembles parent, the advantageous modifications must necessarily tend to be transmitted and preserved in a stock, which will prevail over other stocks. This account of the matter implies, then, that the presence of design is, in ultimate analysis, accidental to the parts, in the same sense as that in which the form of a marble bust is accidental to the marble.

But how can such an explanation be reconciled with the fact, for instance, that the developing cells of the new limb of a newt assume the properties suited to their future function, in whatever way the method of amputation may be varied? It is not only the behaviour, under these circumstances, of the cells relatively to one another that has to be accounted for; but also the fact that as to its individual properties each cell constitutes itself in a certain manner according to its particular future function, and does so, not in a blind mechanical manner, but allowing for complicated disturbing conditions. This latter fact becomes altogether unintelligible if a cell be looked upon as something whose properties have been passively received from without, as the parts of a machine have received their shape, &c. For this reason, among others, Häckel's ingenious theory of the nature of reproduction seems to me to be quite untenable.

To get over the difficulty we must conclude that the determination of the parts as members of a system extends, not only to their behaviour relatively to one another, but also to properties in them which they seemed to possess independently. For only in this way can we account for the circumstance that the 'design' which is seen in the parts is not accidentally present in them, apart from the fact of their determination as members of the system, but is dependent on this fact. There is, then, not merely a reciprocal determination of one another by the parts as subordinate independent wholes; but this reciprocal determination extends right through the parts. That is to say, what appeared to belong to the parts independently of their relation to the whole, for instance their size, shape, and structure, is really only the manifestation in the parts of the influence of the whole.[1]

The nature of this conception of the whole determining the parts through and through, may be made more clear if we consider its application in a much less complicated case. The general contour, at any moment, of that part of the earth's surface which is covered by the sea is due, not merely to the mutual attraction between all parts of the earth, but also, as shown by the tides, to the mutual attraction between the earth and other members of the solar system. We may therefore consider that the contour of the sea is a manifestation in the earth of the influence of the solar system regarded as a whole. There is thus in the case even of the solar system something more than a reciprocal determination by the parts of one another as subordinate independent wholes. For, so far as our illustration is concerned, the influence of the whole manifests itself right through one of these subordinate wholes, and determines its shape, which is one of the properties as to which the parts of a whole of reciprocity are independent. The general conception of reciprocity must here give way to that of the whole determining the parts through and through, so that their essential independence of the whole is lost.

Here again it may be well to state that in the application to biological phenomena of this idea of the whole determining the parts through and through, the existence of no mysterious force is postulated. All that is done is to take a more concrete and comprehensive view of forces with which physiology familiarly deals, the previous view having turned out to be narrow and abstract.

[1] The word 'whole' is used here, not in the sense of a spatial whole, but with a significance which the context sufficiently determines.

In order to get a clearer idea of the conception which we have now reached of the nature of life, we may compare this new conception with that of reciprocity. The parts of a whole of reciprocity are thought of as having a certain independence of their own, manifested in properties which they possess individually, apart from their relation to the whole. And this independence is an essential part of the conception. For it is not merely that the parts seem independent when we leave out of account the whole; but it is of the essence of a whole of reciprocity that its parts are at the same time dependent on it and independent of it. In so far as the parts participate in the system formed by the whole, the influence of the whole in them is not the influence of something foreign to themselves. They are not determined by another, as in causal determination, but by themselves through another. In as far, however, as regards that in the parts with respect to which they are essentially independent, in so far is the influence of the whole in them a foreign determining influence. It is thus true of a whole of reciprocity that its parts are at the same time free and determined by another. In the case, however, of the conception of a whole which determines the parts through and through it is different. For, so far as concerns what is essential to the conception, there is nothing in the parts that is not a manifestation of the whole. The shape, consistence, size, and other properties in which the independence of the parts previously seemed to show itself, are now only manifestations of the whole. In all that the parts do and all that they are they only show forth the whole. It follows from this that if we speak of them as determined by the whole, we use the word 'determined' in a sense altogether different from its ordinary sense. For, since the parts are what they are, only as taking part in the whole, there can clearly be nothing foreign to them in their determination. In this apparent determination they are only manifesting what they are in themselves.

I shall devote the rest of this article to showing how this conception may be brought to bear on specific biological questions. Some apparent difficulties which suggest themselves in connexion with these questions will at the same time be considered.

In the phenomena of reflex action those who uphold the belief that the organism is at bottom only a complicated piece of mechanism find what appears to afford to that belief a reasonable basis. If the finger be lightly and quickly drawn across the sole of the foot it will be noticed that the

foot gives an involuntary jerk. In cases where from injury or other morbid conditions the physiological communication between the brain and the lower part of the spinal cord is severed, the jerking of the foot can still be elicited, and indeed is now exaggerated. It is therefore clear that the jerking is not brought about through the medium of the higher nerve-centres in the brain, but concerns only those of the spinal cord. As the jerk follows the stimulus to the skin with perfect regularity it is evident that there must be a causal connexion between the two phenomena, and it is not difficult to follow out that connexion through the afferent nerves, certain groups of ganglion-cells in the cord, and the motor nerves, to the muscles which move the foot. So far as these facts go they entirely corroborate the belief that the organism is a machine. And it is a plausible deduction from them that, since the cells of the higher nerve-centres are presumably in all fundamental respects similar to those of the lower centres, the actions in which they are concerned are in reality only very complicated reflex actions, the element of consciousness being sometimes added, but in no way altering the matter from a physical point of view.

Of course it is clear that the deliberately purposive actions in which the higher nerve-centres are concerned are of the same sort as those which we have already considered in the case of the earthworm. The restoration of function which, in greater or less degree, follows cerebral lesions in man is also similar in kind to the reproduction of a limb in the case of the newt. Accordingly the reasoning of the previous part of this article may be applied to show that in the case of the higher nerve-centres in man there is something more than mechanical action. But if the matter is left there, and it be at the same time admitted that reflex action is purely mechanical in itself, the conclusion follows that the ganglion-cells of a lower centre are altogether different from those of a higher one, and manifest in themselves the life of the organism in a far less intimate manner. Such a conclusion, however, strikes one at once as being altogether contrary to biological analogy; and a further consideration of the facts will show that it is unnecessary. The fact that a soldier instinctively performs a certain action on receiving the word of command from his superior officer, does not imply that he is a machine. His obedience may have the appearance of being more or less mechanical, but the fact that he originally learned to obey, and was not made to do so by influences acting on him merely from without, shows that he is not in reality a machine. For in the process of

learning he showed that his actions were really purposive; and therefore it is a warrantable conclusion that his apparently mechanical obedience is at bottom a purposive obedience. Now if, in the case of the ganglion-cells concerned in reflex action, we find similar evidence of their behaviour being originally purposive, we shall similarly be warranted in concluding that reflex action is at bottom purposive and not mechanical. It will be sufficient to compare in respect of their reflex actions a mammal with one of the lower vertebrates, such as a frog; as it may safely be inferred from analogy that reflex action in a frog corresponds roughly with an early stage in the development of reflex action in a mammal.

If the spinal cord of a frog be severed from the brain, and a stimulating substance be applied to the skin of one of the hind limbs, the leg is moved in such a way as to make it evident that an attempt is being made to get rid of the source of irritation. And if the leg be held, the other leg is made use of to remove the irritating substance. The animal is also capable of performing many other actions which appear to be to a certain extent really purposive, and scarcely capable of being explained by the hypothesis of a prearranged mechanism in the cord.

In the case, now, of a mammal whose cord has been similarly severed from the brain, what is observed is different. Complicated and highly co-ordinated reflex actions are, it is true, performed. But there is not the same power of adapting these movement to varied circumstances. In other words, the behaviour of the animal corresponds much more closely to what one would expect if the centres in the cord were only so many mechanisms, each previously arranged so as to act in a certain definite way.

Now if it were true that reflex action, looked on as a purely mechanical phenomenon, is the type of the behaviour of the nervous system generally, one would expect to find this type manifested, not less, but more clearly in the case of the lower animals. But the opposite of this is found to be the case. Therefore the mechanical interpretation given to the facts of reflex action can be only superficially correct. The ganglion-cells of the cord can no more be regarded as mechanisms than can the ganglion-cells of the brain. As regards the doctrine often taught, that reflex action is the fundamental type to which the behaviour of the nervous system generally may be referred, physiologists would seem to have been led astray by an erroneous *a priori* conception.

What is true of the ganglion-cells of the cord is true of the cells in parts of the body other than the nervous system.

A cell may superficially resemble a mechanism in its behaviour. But that it is not really a mechanism may be deduced from a consideration of the behaviour of the cells which morphologically correspond to it in the lower animals. The lower we go in the scale of multicellular animals, the more clear does it become that the cells are fundamentally alike in manifesting purposive behaviour. In the higher animals, however, differentiation of function among the cells has gone so far that they have much more the superficial appearance of being mechanisms, with the prominent exception of the ganglion-cells of the higher nervous centres.

This interpretation of the facts is strengthened by a consideration of what may be observed in connexion with pathological conditions of the human body. When any part of a machine is injured or destroyed, there is no tendency to its spontaneous repair. If the injury is repaired, this is only brought about by interference from without. But in the case of injury of any part of the human body there is a manifest tendency to restoration of the function of the injured part, and this quite apart from interferences from without. Sometimes this restoration of function is brought about by means of the reproduction of tissue that has been destroyed, as, for instance, occurs when the shaft of a long bone that has been destroyed by inflammation is reproduced again entire. More frequently, however, this reproduction is due to neighbouring parts modifying themselves so as to be capable of carrying on the function of the part that is lost. As a good instance of this, may be taken a case of locomotor ataxy recorded by Professor Schultze.[1] In this disease, which is very rarely recovered from and almost always ends fatally sooner or later, there occurs progressive destruction of the fibres of the posterior columns of the spinal cord. The symptoms are very marked, as would be expected from the fact of such an important part of the body being affected. Professor Schultze's patient presented the fully developed symptoms of the disease; but, contrary to the usual rule, recovered, there being hardly a trace of the disease left. He died some years later from the effects of an accident. When the spinal cord was examined *post mortem*, the posterior columns in the lower part of the cord were found to be destroyed in the manner characteristic of the disease. The process of wasting had doubtless stopped at the time when the symptoms of the disease began to disappear; and other parts of the cord had thus been given time to modify themselves in such a way as to reproduce the function of the lost part.

[1] *Archiv für Physiologie.*, xii., s. 232.

But it is not necessary to go out of the way to find instances which, it seems reasonable to suppose, are analogous. When, from valvular disease or other causes, increased work is required from the heart, it becomes hypertrophied. Similar hypertrophy in other muscular organs, and in voluntary muscles, occurs under similar circumstances. When one kidney is destroyed the other becomes hypertrophied and does double duty. On the other hand tissues which from any cause have become useless tend to atrophy, as may be seen in the case of muscles which are not used, the collar-bone after amputation of the arm on the same side, or the jaw-bone after the teeth have been lost. The restoration to their ordinary condition of organs whose structure has been profoundly altered by inflammation is almost as remarkable a phenomenon as any of those just mentioned. The more one considers such phenomena as these, even apart from other biological facts, the more does one feel the difficulty, if not impossibility, of putting on them any different interpretation from that which was put on the reproduction of the limb in the newt. But when the behaviour of the tissues generally in the lower animals, and that of the higher nervous centres in man, are also considered, it appears to me that there can scarcely remain any further doubt on the matter.

Clear conceptions as regards this matter would seem to be of great importance in medicine. As has been seen already, the apparent action on an organism of one of its parts is just as much the action of the organism on the part; and part and organism, as regards both what they are in themselves, and their apparent action and reaction on one another, only manifest in themselves the life of the organism regarded as a whole. In like manner a remedy cures diseases only in so far as its physical or physiological action is taken up into the life of the organism, so that that life becomes manifested in it. It is a common source of misconception that in the process of cure the remedy is regarded merely as a cause, producing a certain measurable effect in the diseased organism. To this source may be traced the fact that with the advance of pathological anatomy there grew up so much scepticism as regards therapeutics. For it is clearly impossible to replace artificially the exquisitely delicate tissues which are destroyed or injured by disease. But experience shows that remedies actually do most materially assist in the process of restoration of the function of a part of the body that has been injured or destroyed. For instance, when a valve of the heart has been injured by inflammation, and the circulation thus becomes inefficient, digitalis can be given, not merely in

order to palliate the disease, but with the hope that a relative cure may follow. The digitalis causes the heart to contract powerfully, so as to overcome the obstruction to the circulation and thus keep the patient in health. If this were all, its action would be merely palliative. But while it is being given the heart enlarges, so that after a time it becomes sufficiently powerful to carry on the circulation without the artificial stimulus of the digitalis. Now in this case it is only from an abstract point of view that we can regard the organism as passively undergoing cure through the influence of the digitalis; although death might speedily have resulted had this drug not been given. The *rôle* of the digitalis in the process of cure is as much passive as active. In this process the organism actively utilises the temporary effect of the digitalis on the heart, just as much as it passively submits to the action of the drug. It is thus proper to speak of the physiological *action* of a drug when its administration is regarded from the abstract point of view of physiology. But it is more correct to speak of its therapeutical *function* than of its therapeutical action, since medicine deals with what is concrete.

As another among countless instances of the application of the same principle, may be taken the operation of sewing together the ends of a nerve that has been accidentally divided. This is done in order that the two ends of the nerve may be kept in apposition with certainty. After the lapse of a sufficient time the function of the nerve is entirely restored. When one considers what is implied in this restoration of function, the process seems scarcely less wonderful than the reproduction of limbs in the lower animals. Let us suppose that there is a bundle consisting of several hundred insulated telegraph-wires, each wire being exactly like its neighbours, but coming from a different place: and that this bundle is cut in two. It will be most difficult to find the corresponding ends; and one can imagine the difficulty and confusion thus arising. But the case of the division of a nerve is in every way analogous to that of the division of the bundle of telegraph-wires. What happens usually, if not always, is that the nerve-fibrils of the peripheral portion of the nerve disintegrate, and are replaced after a time by prolongations of the fibrils of the central end, which grow down the connective tissue of the nerve from the point of section. One must suppose, either that these prolongations find their way, each to exactly the same spot as that to which the fibril of which it is a prolongation originally went; or, what seems more likely, that the exact destination of the new fibrils is more or less indifferent, but that the central nerve-

cells to which they lead adapt themselves to the new destination of their fibrils. In any case, the restoration of the function of the nerve is a very significant process; and it would be a manifest abstraction from the actual facts to regard this process merely as the joint effect of keeping the cut ends in apposition and other local causes. Sewing together the cut ends has a therapeutic *function*, but cannot be regarded merely as a cause acting from without on the organism. Such considerations as these justify the conclusion that the scepticism above mentioned with regard to therapeutics is based on an inadequate conception of the real nature of this art; and that advances in the treatment of disease are likely to be as great as, if not greater than, advances in the 'diagnosis' and 'prognosis'.

Perception, in so far as it is treated of by physiology, is commonly assumed to be essentially nothing more than a mechanical process, in which physical impulses are transmitted from surrounding objects to the nerve-cells of the brain. The impressions thus produced may set a-going nervous processes of various kinds; and these may end in muscular motion, or in other ways. It is unnecessary to consider here the doctrine that changes in the nervous system give rise to, or are accompanied by, consciousness. That doctrine in its various forms has been exhaustively and finally dealt with by Green. I shall only consider the physical, or what is often called the 'objective,' side of perception—that is to say, perception in so far as it is a process which may be investigated by physiological methods. The use of the word 'perception' in this sense is no doubt objectionable; but it is hard to find a more suitable expression.

If it can be shown that in perception the surroundings affect the organism in a purposive manner, it will be possible to draw from this fact the same inferences as were previously drawn from the fact that the organism acts purposively on the surroundings. A condition which is more or less essential to perception is attention on the part of the perceiving organism. Now this of course might be taken to mean that certain causes acting from within the bodily mechanism must co-operate with those acting from without in order that there may be perception. But to say this is only to put aside, and not to solve, what is a real difficulty in the way of a mechanical interpretation. For it may be asked what it is that causes attention to be directed to one object rather than another. The ultimate answer to this question is that those objects are attended to, the perception of which is of advantage to the perceiving organism, or conduces in some way to its life. And as attention is directed in this manner,

even in circumstances which had not previously been experienced by the organism or its ancestors, we may infer that the action is purposive, and that therefore objects perceived are perceived purposively. From this may be drawn conclusions similar to those drawn from the consideration of purposive actions in the case of the earthworm and other cases.[1]

Attention conditions not only the fact of perception, but also the nature of that which is perceived. To two men, especially if they are of altogether different tastes, the same phenomenon will seem altogether different, although both of them attend to it most carefully, and form a distinct conception of it. That which a thing perceived is for the perceiving organism, it is as manifesting in itself the life of the organism, just as any one of the organs has its being as a manifestation of this same life. Thus it is that a man's whole self can be truly said to be expressed in his perception or non-perception of a few bars of music, or a few lines of poetry. It is not sufficient to say that his mind reacts on them just as much as they affect him; for this implies that there is something in them that is foreign to him, which is not the case. They have just as little independent significance in their details as they have considered as wholes. In all that they are for him they are determined through and through as taking part in his life; so that in perceiving them he may be truly said to be perceiving nothing but himself. This is of course only in accordance with the conception previously reached of the surroundings of an organism as participating in its life just as really, though not so intimately, as do its own parts. We are thus enabled to see how it is that separation in time and space is only real in a world looked at abstractly under the category of cause and effect, but becomes altogether unreal when we penetrate behind this abstractness. Nothing less than the unreality of such separation is implied in the doctrine that the bodily parts

[1] To attend effectually to an object of perception is often a simple 'voluntary' act. That is to say, any passing interest is sufficient to direct attention on the object. Frequently, however, far more is required than a mere passing interest; so that it may be quite impossible voluntarily to give the necessary attention. For example, some persons who are familiar with the Prelude to 'Lohengrin' profess to see in it little more than "a study of orchestral effects"; and it may be that no amount of voluntary study of the music will enable them to perceive it as it ought to be perceived. Something deeper than a passing interest is necessary. Even in our ordinary perceptions it is only in appearance that a passing interest is sufficient to direct attention, in this wide sense, on the object. This becomes evident if the perceptions of a civilised man be compared with corresponding ones in a savage, or one of the lower animals.

and the surroundings of an organism have their being and motion in a life that is yet one and indivisible. This life, from its nature, cannot be envisaged as a something that is 'here and now'. It can be thought, but cannot be pictured. In this sense it is ideal. But none the less it is far more real than those abstract aspects of it which are commonly taken for reality.

Apart from this general conception, it seems impossible to reconcile the conclusions of philosophy with those of the natural sciences, and especially physiology. For if an organism be looked upon as nothing more in ultimate analysis than a mechanism kept in motion by energy supplied from the surroundings, it is impossible to avoid conceptions which philosophy has shown to be absolutely meaningless—such as that of consciousness being produced by, or accompanying, certain physical states of the brain. Unless we get over in some way such contradictions as this, either our philosophy or our science must prevail at the expense of the other.

A subject in connexion with which difficulties of this sort are peculiarly liable to arise is that of evolution. It is pretty clear that, if life is more than a mechanical process, evolution cannot be regarded merely as brought about by the action and reaction on one another of organisms and their environment. That it is so brought about is, however, commonly believed. It appears to me to be not difficult to show that this belief is not warranted by the facts. I can only, however, discuss the matter here in a very general way.

When it is said that variations in the environment of an organism tend to produce in it corresponding changes, and that these changes are transmitted to its descendants, a covert assumption is made—the assumption, namely, that the word 'produce' correctly renders the actual nature of the facts referred to. The peculiarities in the breed of dray-horses, for instance, have been 'produced' artificially. But these peculiarities occur in parts of a living organism, which parts have all the characteristics of what is living. For instance, the nerves supplying the muscle and other parts which are so largely developed in the dray-horse, would, if divided, doubtless reproduce themselves in the same way as in other parts. And the behaviour of the parts of the central nervous system which are modified to correspond with the increased development of muscles, ligaments, skin, bone, &c., would give evidence of a participation in the one living whole which we saw that an organism is. As, from its nature, that whole cannot be thought of as acted on from without, it is necessary to re-

gard as *function in* that whole what was taken to be *action on* the organism from without. When, therefore, we say that variations in the environment produce changes in the organism, we can mean no more than when we say that a surgical operation produces a reproduction of lost tissue.[1]

It is thus an error to treat development as a process in which organisms are *made* what they are, or, which comes to the same thing, a process taking place in space and time. This latter statement may seem specially paradoxical; but becomes perfectly intelligible as soon as it is realised that knowledge is not limited to what can be envisaged in space and time.

The idea that abiogenesis is possible or conceivable depends on the same transcendent use of the categories of physical science that is at the bottom of so many other misconceptions. So long as the organism is looked at from the point of view of physical science, it certainly cannot be supposed that there is any insuperable difficulty as to the origin of life from ordinary physical conditions. The whole question is assumed from the outset; and the only real difficulty that can arise is that of drawing a line between the organic and inorganic. But if the contention of this article as to the nature of life is correct, it follows that it is as unreasonable to consider the possibility of the origin of life out of mechanical conditions, as it would be to consider the possibility of the origin of matter and energy from mere relations of time and space. We may trace the steps in the development of life back to the time when the solar system was in the gaseous state. But in thus retracing our steps we carry with us into phenomena which we had abstractly considered to be purely mechanical, the same conception that we originally started with.

The want of a sufficient philosophical vocabulary in English has been a source of great difficulty in a discussion in which it was specially necessary to be clear as to the meaning of the expressions made use of. I have found it necessary to employ words, the use of which, if taken in their ordinary sense, would seem inconsistent. As it appears to be almost impossible for anyone who writes on philosophy in English to avoid such apparent inconsistencies, I have been forced to leave the context to determine in what sense a word is used at any particular place.

[1] In *Principles of Biology*, pp. 451-457, Mr. Spencer discusses, in relation to the argument of *The Origin of Species*, what is really one aspect of the difficulty of a mechanical interpretation of evolution. I cannot, however, agree with Mr. Spencer's conclusions in the matter.

III.—THE METAPHYSICAL METHOD IN PHILOSOPHY.[1]

By Shadworth H. Hodgson.

I.

I propose to invite your attention this evening to the question of Method; whether there is a distinct and peculiar method in philosophy, and if so what it is. If there is such a thing as philosophy, it must have a method of its own; but at the present day it seems almost as if there was not such a thing. There are philosophies in abundance. There are the Spencerian philosophy, and the Hume and Mill line of speculation, in this country; there are Herr von Hartmann's philosophy, and the line of speculation known as "Theory of Knowledge," in Germany; there are Auguste Comte's Positive Philosophy, and M. Renouvier's Phenomenism, in France; there is the Scholastic Philosophy for the use of Catholics;—these are all alive and vigorous;—then there are some majestic ruins of philosophies, which still afford shelter to their respective votaries; besides which are several minor or less known philosophies, which it would be tedious to enumerate, each employed in battling for its own hand, to say nothing of various philosophies of common-sense, almost as numerous as individuals, which keep their horns very much within their own shells. But apparently there is no Philosophy; and *a fortiori* there is no method.

Truly a disheartening spectacle. And what is worse, if we look at its history, the confusion seems to increase rather than diminish. There appears to be but one fundamental conception, belonging to the old Scholastic philosophy, which is still held by all its modern derivatives, namely, that of the *agency of substance*. Those who discard this conception, as Hume did, fall *ipso facto*, it would seem, into philosophical scepticism, which is the antithesis of philosophy; while those who retain and build upon it diverge continually farther and farther from each other. Philosophers have now to face the question, whether this conception can or cannot be justified as an assumption; and if not, whether philosophy, as opposed to philosophical scepticism, can or cannot exist and thrive without it. *The metaphysical method in philosophy*,

[1] Address at the opening of the Session of the Edinburgh University Philosophical Society, November, 1883.

which I am about to bring to your notice, will be found, I hope, to yield an answer to these questions.

The disintegration of philosophy seemed to have reached a crisis when, towards the middle of the last century, Hume declared that he could frame no idea whatever of power, or of the causal nexus, either between things or thoughts, except so far as custom or habit, founded on a *de facto* but quite inexplicable order of events, was a partial explanation of the latter. For himself, he said, he should continue thinking, because he enjoyed the exercise, but as to thereby reaching anything like *truth*, of that he saw little or no hope. This was virtually a challenge to the conception of substantial agency; Hume virtually taxed it with being an unfounded assumption.

The crisis thus marked issued in a more complete disintegration of philosophy than before, a result which seems at present to justify Hume's position, and entitle him at least to the glory of being a true prophet, far in advance of his age. For, as I need not remind you, there stepped forward now some hundred years ago, to meet on the one hand the growing disintegration and scepticism, of which Hume was the chief mouth-piece, and at the same time, on the other hand, to disintegrate still farther that offshoot of Scholasticism which was then current in Germany, the Leibniz-Wolfian philosophy,—that man from whom the modern period of philosophy is dated, Immanuel Kant. He is generally supposed to have gone to the very root of matters. He made it his first question—*How is experience itself possible?* He thought he had laid the foundations of philosophy in an enduring manner. In this there were many who agreed with him, particularly Germans, and several of them, together with others who were not Germans, proceeded to build on the Kantian foundations. But with what result up to the present time? *Si documentum requiris, circumspice.* Philosophies are legion, philosophy nowhere. Kant indeed disintegrated the Leibniz-Wolfian system, but, to judge by the results hitherto, he did not lay the positive foundations for a philosophy capable of commanding universal assent.

If we ask for the causes of this second, post-Kantian, disintegration, the answer may be given in a single word—*Assumptions.* The *Critick of Pure Reason* contains several assumptions. One is, that the various forms of judgment specified in the Aristotelian logic are immediately and severally derived from processes essential to the thinking faculty. Kant built on this assumption by making it the key to his theory of the twelve Categories. With what result? Why,

the ruin of the theory of the twelve Categories involved the credit of the Aristotelian logic, on which it was built, and at a stroke tore away that whole block of masonry from the crumbling edifice of Scholasticism.

This however is a minor matter. Let us see what Kant's main and fatal assumption is. "Back to Kant" has long very naturally been the cry in Germany; and it is a cry which all should echo, inasmuch as from Kant is dated the modern period of philosophy. But for what purpose back to Kant? Is it to adopt his assumptions, or is it to avoid them? The difference is great.

To my mind the imperative reason for going back to Kant is this, that his system is the *reductio ad absurdum* of the main assumption upon which it is built, that assumption being a form of what I named above substantial agency. I mean his assumption of causal agency in the Subject. Many persons, especially those who make Scholastic assumptions, seem to think that, if Kant is not true or tenable, there is no use in going back to him. But the fact is, his untenability is the valuable part about him. His logic is so good, that the assumptions from which he reasons are ruined. Common-sense philosophers, and Scholastics who formulate common-sense, think that, if they can refute Kant, they have done something towards saving their own assumptions. On the contrary they have but witnessed to the irrevocability of their loss. For his assumptions are their own. By all means, then, back to Kant.

Let us see what his main assumption means. In both the great lines of thought from which Kant sprang, the line of Leibniz and the line of Locke, a causal agency in the Subject had been spontaneously accepted. Hume, however, had remarked that Berkeley's arguments about an external world, if consistently carried out, would tell against the real existence of the Subject as much as against the real existence of Matter. He, for his part, he said, could form no idea of power or causality anywhere. The causal agency of the Subject was thus called in question.

What then does Kant? He begins by going to the root, or rather perhaps to one root, of the matter, by asking, How is experience itself, experience of anything, possible? And the answer he gives is—By the real existence of causal agency in the Subject, which synthesises its feelings. His whole philosophy is founded on the assumption of the very thing required to be proved. It is true, the causal agent, with him, is never within, but prior to, experience; manifesting experience, and manifesting itself to experience, by

means of *à priori* forms springing from itself, which, from their being links between experience and that which transcends experience, are termed transcendental, and give the name *transcendental* to the Kantian philosophy. But this alters nothing in the essential nature of the thing assumed, I mean so far forth as it is a causal agency in the Subject.

It is worthy of note, that, as against the *tabula rasa* theory of the mind, and on the assumption of causal agency in the Subject, common to the upholders of that theory and Kant, his theory, that there must be some *à priori* contribution to knowledge, is irrefragable. For if there is causal agency in the Subject, it must have laws or ways of working which really contribute to the result, experience. If it contributed nothing to the result, it would not be a causal agent. To regard it as purely passive is impossible. Pure passivity is an impossible idea. It is as much an *ens logicum* as Aristotle's Matter. This, however, is by the way. The real point in Kant is his assumption of agency in the Subject, and the proof that it is, with him, an assumption. Now when a man tells you in one breath, or even at the distance of a few pages, that such and such a thing certainly exists, and that he and the rest of mankind know absolutely nothing about it,—the first of those statements is the statement of an assumption. Kant's theory, then, is at bottom a refinement of the traditional assumption of causal agency in the Subject, and at the same time an attempt at removing that agency into an unknowable or technically a *noumenal* region, where it should be beyond the reach of criticism. His philosophy therefore proposes to be critical and transcendental at once.

There is another assumption in the *Critick of Pure Reason* closely allied to the foregoing and involving it. This is the assumption that sensations, which are the matter of experience, are originally, and as supplied to us from without, an absolute chaos, and that perceptions of order, and even of mere succession among them, that is, the lowest beginnings of experience, are the work of subjective agency. I imagine that Kant was led to make this assumption by the desire to go to the root of the genesis of experience. He would construct experience, without assuming any fragment of experience already existing, since to do so would, he thought, open the door, as it certainly would, to further sceptical questions, like Hume's, to which no answer could be given, would, in fact, be equivalent to assuming an orderly external world. The matter of subjective experience was to be, what Aristotle's physical matter was to common-sense objects, a pure potentiality, out of which by subjective agency, in subjective

forms, experience was to be produced. But who does not see that this assumption of a chaos in sensations, out of which experience results, involves the assumption of causal agency in the Subject? For what else remained capable of moulding experience out of them?

This thoroughness in avoiding the assumption of any particle of experience, in explaining the genesis of experience, leads therefore to the most glaring assumption of all. A chaos of sensation is a pure and impossible fiction. It is true that we put together sensations of the various senses into a perception of the external world, as for instance sensations of sight and of touch into solid coloured objects; but each of those sensations severally is orderly both *ad intra* and *ad extra*, has always some duration, or duration and extension together, and always some place in a series of other sensations. Kant's phrase, "the manifold of sense," covers both cases of disorder in sensations, and serves to shelter the case in which the disorder is a fiction under the ægis of the case in which it is a fact. I will show you presently, that to take experience as it is given, that is, as a sequence of orderly sensations (though not orderly in the sense of being worked up into an external world of material objects), involves no assumption of an external world as the cause or source of that experience. Meantime it is enough to have shown, that the opposite course of assuming a chaos in sensations does involve the corresponding assumption of causal agency in the Subject, which is Kant's prime assumption, made to account for the genesis of experience as a whole. His noumenal Subject thereby became the constitutive agent of the whole objective world; and thereby also this noumenal Subject, though individual originally in Kant's intention, lost all distinction of persons, and became, as the noumenal subjective agent producing and manifesting the phenomenal world, what Kant's immediate successor called the *Absolute Ego*.

Whereupon all Germany went mad; the voice of sober criticism was overpowered. Maimon's distinct step forward in the critical direction was disregarded. The crop of theories constructing the universe, which followed from this beginning, I need not describe. It became the fashion to construct the universe. It was as if every one had said —'Go to, let us discover a central principle whose efficacy shall reach unto heaven'. Many Towers of Babel arose in consequence, each built upon its own peculiar central principle, derived from Kant, some special form of causal agency in the *Noumenon*. Spinoza revived and walked. His wisdom

was justified of many children. The towers were, some of them, very fine specimens of architecture. But as for reaching heaven, never was there a more disastrous exemplification of the Protagorean *πάντων μέτρον ἄνθρωπος*. That famous unit of measurement was applied to the universe, and the universe appeared incommensurable. It was a circle which refused to be squared.

Now observe, in one sense it is no assumption and involves no fallacy, to apply the *πάντων μέτρον ἄνθρωπος*, for it is not in man's power to do otherwise, he has no alternative course. But it is a very different thing to *formulate* the *πάντων μέτρον ἄνθρωπος*, to assign the mode in which self-consciousness is identical with its objects, and make that formula the basis of your reasoning. You are then making a real assumption; assuming the truth of your formula, and applying it *à priori* to experience. This is what the post-Kantian ontologists did. They applied a formulation of the *πάντων μέτρον ἄνθρωπος* to measure and construct the universe. Hegel, for instance, assumes an agency, subjective in kind, working by the Principle of Contradiction, an agency of Thought which he calls Dialectic; Schopenhauer an agency, subjective in kind, which he calls Will; and both being exhibited as the constructive agencies of the Universe. The towers built by these measurements may be seen standing unto this day, in isolated and helpless magnificence. The builders have not scaled heaven; they have not measured infinity; they have not read the riddle of the universe; they have, like Frankenstein, created in their own image a *Noumenon* which mocks them. Yet still they build. "More Towers" is still the cry. Von Hartmann's is still in progress.

Truly a disheartening spectacle, especially when we consider that the cause of the builders is ours, that it is our business as well as theirs, being the business of philosophy, to render the universe luminous and intelligible to human thought; still more when we think that in speculation must be laid the basis for agreement in action, in all departments of human activity, religious, ethical, social, and political, if indeed such an agreement is ever to be attained. The importance of the service which philosophy can and ought to render to mankind can hardly be overrated; but this does not mean that philosophy can ever play a large or conspicuous part in human affairs. Remember the fable of the Lion and the Mouse. Philosophy is to human nature as a whole, with all its purposes and its struggles, the mouse which gnaws through the meshes of the hunter's net which holds the lion in its toils. But it is not the time to dwell

on these points now. The point I wish to insist on is,—what hope or what means there may be of revivifying philosophy, one and indivisible, as distinguished from the mushroom crop of philosophies, the various *systems* of philosophy which men are making, each for himself, out of the principle or set of principles which may happen to commend itself to him as self-evident, either from his own reflection, or on the authority of some leader of thought who has chanced to command his attention.

I take it that the great philosophical problem of the present day is this, to put philosophy on the basis of a definite pursuit, having a field common to all workers, like one of the sciences, so that each worker shall add something to the common stock of knowledge, whether it be by perception of new truth or by correction of old error, without proceeding to construct afresh the whole previous acquisition on some new and comprehensive principle evident in the first instance to himself alone. It is to make philosophy more than the philosopher, just as science is more than the man of science. For this purpose there must be a method common to all workers, common, not to contemporaries only, but also to predecessors and successors, a method which each may apply to the phenomena of his own experience or consciousness, though not of course by simple interrogation of it without knowledge of previous speculations. The most careful study of what has been already acquired, and of the ways which others have trodden, will still be as requisite as ever. But in addition to this, there must be the common method also.

The imperatively pressing nature of this purpose of reformation stands out clearly from the history of philosophy, and more particularly from its history since Kant. The great lesson to be learnt from this later history is the futility of constructing a theory of the universe on any principle of causal agency, however apparently certain, before making an exact analysis of the phenomena which fall actually under observation, and especially before we know from that analysis, what precisely the term *causation* means. The principle of causation was the traditional assumption which Kant adopted from Scholasticism, and transmitted to his successors, and this it is which has ruined and is ruining, from within, so many of these theories. They have assumed the general conception of causal agency as equivalent to a knowledge of what causal agency consisted in, or of the *perceptual* content of that general conception. It is a case of a general term being taken for an actual or real thing, a too

genuine instance of what is known as the *Realism* of the Middle Ages. So far as at present appears, Hume was right; we are as far as ever from any knowledge of what constitutes causal agency.

Considerations like the foregoing have led me to the conclusion, that we must make a radical change in our method of philosophising. Instead of having recourse in the first instance to an hypothesis in order to explain the genesis of experience, the genesis of matter, or the genesis of both together indistinguishably,—hypotheses, which, from the very terms of the problem so stated, must transcend, or have their object prior to, the things they are employed to account for,—we must have recourse in the first instance to experience itself, and see what its content is, apart from any hypothesis of its cause or mode of production. The conception of cause itself is a part of experience; and thus to assume it as *per se notum* to account for unanalysed experience is to make an unknown account for an unknown, the distinction between them being unknown also. Moreover, since hypotheses can be adopted only when we have formed some notion, true or false, of what those things are, the origin of which is to be accounted for, and which they are adapted to explain, it follows that, if this notion is untrue, it operates like a foregone conclusion in argument, leading us first to look for our hypothesis in a wrong direction, and then to manipulate the original *data* into conformity with the hypothesis we have adopted.

What I say then is this,—Throw yourself frankly on experience. Be not afraid of its misleading you, if only you can get it pure, without admixture of self-made puzzles. Experience without leading-strings is the thing to trust to. But at the same time it is most difficult to get, since we put it into leading-strings involuntarily and unwittingly. Experience without leading-strings is the thing to aim at and work for. We have after all no other source, no other test, of knowledge. Hypotheses will not alter facts. Whatever the facts be, let us face them. In one word, have faith in the order of the universe. To go simply to experience is, in a humble but very real sense, to exercise faith. It is cheerfully accepting an unknown future, in preference to insisting on our present notion of it. We must give up, not professedly only but actually, our most subtil, familiar, and insinuating imaginations, if we hope to attain truth. Truth is like Shakespere's Portia, listening to no suitor till he has proved his sincerity by selecting the leaden casket inscribed with the words, *Who chooseth me must give and hazard all he*

hath. That is the proper temper of true love, and that is the temper in which we must approach philosophy. We must make no bargain with truth.

It is said and most truly said, that we ought to be perfectly indifferent, perfectly receptive, with regard to experience, to bring with us no bias of our own. But what I want to point out is, that to maintain this indifference, receptivity, and freedom from bias, is itself a decided attitude and temper of mind, which it costs a determined effort to maintain. It is a positive temper of mind which we may call either faith or love of truth for its own sake, the very opposite of a foregone conclusion. Though positive, it furnishes no premiss, initiates no line of argument, favours no particular result. What it initiates is *method*, a method of getting experience pure. In order to give up those insinuating imaginations which constitute a bias, we must first find them out. It is an instance of being biased by such imaginations, when we attempt a construction of the universe, either in avowed separation from analysis, or in undistinguished union with it, *analysis* meaning analysis of the universe *as known*, or as in knowledge, that is, experience in the widest sense of the term. To construct the universe from first principles can be nothing but a bad imitation of science, working with unverifiable instead of verifiable hypotheses.

If the foregoing diagnosis of the philosophical position and problem is correct, philosophy will fall into two main parts or branches, analytic and constructive, of which the analytic must be treated first, before the other is attempted, or even held to be possible,—so entirely will it depend on the results of the analytic part. But this division of philosophy into two parts, analytic and constructive, the former being the condition of the latter, is, you will observe, a division of method, resulting from the precept of subordinating everything to analysis. It is a theorem relating, not to the object-matter of philosophy, but to our treatment of it. The same object-matter may be treated under both heads, or twice-over. There is a separation of two branches of philosophy because there is a distinction of its two methods, analysis and construction.

Method is the practical part of speculative philosophy as a pursuit—*philosophia agens*—that part of which *we* contribute to the resulting discoveries of truth. And it is a dictate of plain good sense, that so soon as we are aware of the intimate and subtil nature of the disturbance which our familiar conceptions and involuntary assumptions cause in the phe-

nomena under examination, we should seek to formulate and distinguish the part which we contribute to the pursuit, from that which is due to the phenomena themselves. We then know where we stand, and what we are doing. This is a thought closely similar to that conception of the province of *Critic* analogous to that of *Logic*, which was Kant's guiding thought in instituting the Critical Philosophy,—to test the powers of the mind, and see what part the mind contributed to experience. Only, as I have shown, Kant mixed the assumption of agency with his conception of the mind and its contribution; whereby not only his philosophy became a *positive* and *transcendental* (as well as a *critical*) philosophy, but also this further result came out, that the mind's action was in some cases *constitutive* of truth, in others *regulative* only. Whereas, the fact is, that the mind's action is regulative from the first, and regulative exclusively; and to distinguish and formulate that regulative action is to distinguish and formulate the Method of Philosophy.

II.

Having thus attempted to show the necessity of a method in philosophy, distinct from the phenomena to be examined and from the results to be reached, and having sketched in outline the requirements which a method must fulfil, and the services which it may be expected to render, it follows that I should attempt to show you its practicability, or how it will present itself when we propose actually to apply it, in the first or analytical branch of philosophy. I will accordingly exhibit it under two heads, first, its main characteristic of being subjective analysis of experience, directed to separate the involuntary admixtures of thought from the content of thought as a whole, and prevent them from being adopted as assumptions of independent truths; secondly, its guiding principle in this process, which is nothing more than the effectuation of the subjective analysis, and consists in the analytical distinction between the question, *what* things *are known as*, which I call their *nature*, and the question, *how things come* to be what they are known as, which I call their *genesis* or *history*. This distinction is due to Aristotle; it is his τί ἐστιν and πῶς παραγίνεται We shall see the import of each of these characteristics as we proceed.

But first and foremost there are two distinctions to be mentioned, subsidiary to this process, and of a logical

nature, distinctions which relate to the use of language, and are directed to guard against the fallacious assumptions which creep in through that entrance. Language is the creature of thought, but created, for the most part, in pre-philosophic times and by pre-philosophic people. When once created, it stereotypes the dim and vague thoughts which gave it birth, lends them distinct outline, and makes of them fixed, familiar, forms and grooves for subsequent thought to assume and move in, forms and grooves which thenceforward appear to represent obvious and self-evident facts.

The first of these logical distinctions is that which J. S. Mill has made his own, though Scholastic in its origin, the distinction between denotation and connotation. Its force lies in this, that a term used as a term of denotation is used "without prejudice," as English lawyers sometimes say, to the real meaning or true connotation of the term, which is left to be settled afterwards. It simply designates the things spoken of, without making any use of their meaning or connotation farther than to designate them, and propose them as subjects of consideration. Since every term has a connotation, and the commonest words have the most unsettled connotations, it is clear that, without this distinction, a mutual understanding would be rarely attainable. We should not be free to use the commonest forms of speech, without being liable to be held committed to some abstruse theory. For instance, in saying, *I see a man*, I might be committed to an intuitive knowledge of another consciousness, since how otherwise could I see that it was a man I saw?

The second logical distinction is also of Scholastic origin, the distinction between terms of first and second intention. A term of first intention is a term used to signify any object which has perceptual form, any individual object of thought. A term of second intention is a term used to signify an object which has conceptual form, that is, as related to other objects in thought, or as a member of a class. The force of this distinction is, that, while all terms can be used in both ways, a term used in the second way characterises the thing signified merely by some relation to other things, assuming the thing itself to be known, while a term used in the first way, or as a term of first intention, signifies the thing itself as immediately present to consciousness. We have in this distinction a means of discovering whether we are assuming the thing spoken of as already known, and if we are, whether we are speaking of it as it

can be brought before consciousness immediately. For instance, in speaking of a tree, do I mean the picture I form of it in consciousness, or do I mean the relation I imagine it to hold to other trees, and to objects which are not trees, supposing that I already know what trees are? It is a distinction directed against the assumption, which is latent in all general terms, that we already know the things to which they are applied, an assumption which may or may not be warranted. For instance, in the above case of *tree*, it is warranted, since I have a distinct perceptual picture of a tree *quâ* tree. But in the cases of *cause* and *noumenon*, which we have had occasion to speak of above, I have no perceptual picture of cause *quâ* cause, or of noumenon *quâ* noumenon, but these are relations taken as objects related. The relation is here the only object of the terms; whereas a relation and its content together are the object of the term *tree*, namely, the parts of the tree and their relation to each other. In the former case I characterise a thing solely by its relation to another thing; in the latter case I characterise it by its perceived content, that is, its parts in relation to each other. Both these logical distinctions, I would add, are distinctions in the use of terms, not in the terms themselves, since words have no marks whereby their several uses may be distinguished.

I now come to the first of the two heads under which I propose to bring the positive consideration of method, namely, its character as subjective analysis of experience, without assumptions, and directed against them. In the first place, what is meant by the method being subjective? In one sense all knowledge must be subjective, and cannot avoid being so. Even when we speak of abstract existence, we speak of it as known or surmised; in other words, it is an object of subjective consciousness; and to this kind of subjectivity we are all manifestly restricted. In what sense, then, distinct from this, is the true method of philosophy said to be subjective? It is in its making this fact of subjectivity, with its double aspect of all things, which is already by institution of nature its instrument, also its object, and thus criticising itself as it proceeds. At every step the subjective and objective aspects are compared, and we are continually asking ourselves—Do I really see that, Do I really mean this? We are continually recurring to our own subjective experience, or, as I have usually been in the habit of expressing it, we are continually exercising *Reflection*.

Now you see that this process is the opposite of that which is practised in science. In science it is taken for

granted, and then overlooked, that we know and test knowledge only in subjective experience or reflection; recourse is had immediately to the objects, which are assumed as existing independently of our knowledge. Science takes things as in existence, and philosophy takes them as in consciousness. Philosophy thus deals with the opposite aspect of things to the scientific aspect, and its aspect, the subjective, subtends, as it were, the objects of all the different sciences, and is the one subjective counterpart of them all. Whether these objects are mathematical figures or calculations; physical bodies or forces; psychical agents, actions, or states of consciousness; that is, whether they are objects of mathematical, physical, or psychological science; the subjective aspect, considered by philosophy, is their common counterpart. States of consciousness, which are among the objects of psychology, have a double aspect, just as much as physical things; their objective aspect, alone, is the object of psychology; in their double or subjective aspect, they are the object, not of psychology, but of philosophy, and are subjected to a new method, over and above the psychological.

In adopting this subjective method and critically examining the subjective aspect of things, philosophy does not for a moment quit the ordinary world of common-sense, the ordinary experience common to all mankind. That common world is the world in which we all stand, which both science and philosophy begin with, and which they make their basis and starting-point. The man of ordinary common-sense treats the world in one way, the man of science in another, and the philosopher in another; the second way does not subvert, but is superposed on the first; the third does not subvert, but is superposed on the first and second. The third is the subjective analysis of all the phenomena presented by the two foregoing methods of dealing with the common object-matter of experience, and of the conceptions which they frame of it.

This will perhaps be best exhibited by contrasting the philosophical with the psychological way of dealing with that object which is common to them both, states of consciousness or conscious experience. Psychology takes an object, a tree, for instance, and tells you what is due to sight, what to touch, muscular sense, association of ideas, judgment of distance, shape, magnitude, and so on. An object of consciousness is thus analysed into states of consciousness and their combination; and these states and their combination are referred to the mind or organism on

one side, and to objects external to the organism, and to the mind localised therein, on the other; and thus the whole group of states of consciousness, composing the object as known, is analysed; and its genesis partially explained.

But that is not the method of philosophy, which is not permitted to assume powers, either in the mind, or organism, or in external things, producing the states of consciousness in combination which is called a tree. Be these agents and agencies real or unreal, knowable or unknowable, it may be psychological, but it is certainly not philosophical to assume them. Nor does philosophy indemnify itself for its abstinence in respect of these assumptions, by indulging in assumptions of another kind, such as a general consciousness, or a noumenal substrate, or a potency of matter, determining that what I call *I* shall what I call *see* what I call *a tree*, where I call *here*, when I call *now*.

The method of philosophy is simply to turn the tapestry. Instead of taking experience in the form of objects, it takes it in a stream, as it comes, not drafted off, by an art so old and familiar that it has become wholly unnoticed, into several rounded-off objects, a bit to this and a bit to that; as when, for instance, seeing a brown and green expanse of a certain outline, and with parts of it in a particular kind of motion, I instantaneously connect it with certain remembered sensations of touch, locomotion, &c., and draft it off into a mental pigeon-hole labelled *tree*. That is not what philosophy does. Its business is to undo, to invert, that process. It takes the green and brown expanse as it comes, in its proper place in the stream of consciousness, its business being to analyse consciousness, not trees. So taking it, I am aware of the larger visual expanse of which it was a part, and also that while seeing it I heard (suppose) a sound, making part with it of one stream of consciousness. Philosophy does not, by instantaneous association, draft off that sound into another pigeon-hole labelled *thunder*, but analyses the stream, consisting of tree, thunder, and other varied contents, without stopping to notice that they are called so, and compose a world of external objects. Its business is with the stream, and the features which belong to it as a stream of consciousness. The fact that these objects come to us in a varied stream of consciousness entirely escapes the notice, or at any rate is held irrelevant to the purpose of psychology, a science which studies the relation of an assumed percipient to an assumed external world, and therefore makes its beginning with *the tree* ready marked off, as an object of the sentient *ego*. Now subjective

analysis of the stream of consciousness, *without assumptions*, is the whole business and function of philosophy.

But while, on the one hand, the function of philosophy is thus reduced to a point, and is so simple that every one can perform it, seeing that reflection on his own consciousness is within the reach of every one, yet on the other hand the range of object-matter, over which it extends, is vast in the extreme, being whatever falls into the content of a single consciousness, and every consciousness is the subjective counterpart or mirror of an universe. By taking experience on its subjective side, without hypothesis as to its origin or the origin of its parts, we have a means of examining its whole content in detail, comparing, classifying, and analysing, not only its parts, but the relations of its parts to one another. Not only the external world comes before us for examination in this way, but the various modes of consciousness itself; its feelings, pleasures, pains, emotions, æsthetic perceptions of beauty, poetic imaginations, volitions, actions, judgments; including all kinds of theories and conceptions and imaginations in science, art, ethic, and politic. Ethical theories founded on ideas of right and wrong, good and evil, advantage and disadvantage; and religious beliefs which transcend the boundaries of the seen world; everything is part of the content of consciousness, and in order to be grasped firmly must be approached by examining that content closely. The present method, therefore, has the keys of practical as well as speculative theory. Ethic, which stands at the head of all theories relating to practice, cannot be successfully treated unless it is based on a foundation of experience subjectively analysed, since what is true of external experience (so called) is true also of internal. Yet how often do we see Ethic approached off-hand as an independent inquiry, assuming the nature and existence of individuals as things already known, and then basing itself on some supposed set of self-evident first principles, always found sooner or later, and usually very soon, to be in hopeless conflict with some other self-evident set. But more cannot be said on the range of subjects dependent on subjective analysis of experience, without applying the method as well as describing it, which would be beyond my present scope.

Now it is plain, that no man can be required to give or entertain a theory as to *how* he can have experience, at the same time that he is having it and attending to *what* it is. The experience must be taken *as given*. It is our *datum*. But in using, with Kant, the word *given*, I am not to be

called upon to say given *by what* or *to what*. I use the word *given* denotatively, to designate what I mean, abstracting from that part of its connotation which involves a giver and receiver. These notions of giver and receiver, source of percepts and percipient, will have to be found *in the experience*, by analysis. I am not to be taxed with denying my own individual existence, nor with substituting for it an universal consciousness or Absolute Ego, or any other form of the Absolute, nor yet with supposing that things exist only as modes of my individual consciousness, which involves their dependence on it, a theory which has been characterised as *Solipsism*, (all which things would be violent assumptions), because I put away, as matter of method, all questions of what experience depends on, until I have first satisfied myself what the content of experience is, at least so far as to know what is meant by *dependence*, as part of that content.

This point, with regard to the agent in consciousness, Soul, Mind, Ego, or Subject, call it what you will, I would particularly insist on. It is not denied that *there is something there*, agent or agency, which we may *denote* by those names. The method merely requires us to know something of *what* it is, before saying *how it comes* or *what it does*, or whether the *connotation* of those names is a fiction or a fact. So long as it is held to exist without being known, we are at the mercy of every charlatan who roundly asserts this or that about it, on the authority of his own insight. One says black, another white. One vows that it is spiritual and incorruptible; another that it is material and perishable. Now these four things are not matter of immediate inspection pure and simple; they involve inference, or at any rate interpretation of inspection. What the present method does is to require, that the immediate marks, by which such properties as these are attributed to the Subject, should be assigned. By what marks do you attribute agency, or know that it is an agent? It does not follow that it is *unreal* because we have no positive knowledge of it. But let us know where we stand, and what we are doing.

Again, the alternative—Ontologist or Psychologist—which formed the decisive question in philosophy in the early part of this century, does not arise on my method. That alternative arises from putting the question *how comes* experience, with or prior to the question *what is* experience. The distinction between psychology and ontology, ontology then standing for philosophy, fell between two theories of the *genesis* of experience, the psychological which referred it to individual conscious agents in presence of an external world,

and the ontological which referred it to some transcendent, or it might be some immanent and absolute, source at once of world, and agents, and consciousness. But the distinction between psychology and philosophy falls very differently, on my method. It falls, not between two theories of genesis of experience or consciousness, but between the analysis and the genesis of conscious experience, however that genesis is conceived. Psychology is with me one of the positive sciences, and philosophy is the subjective counterpart of them all.

I think it will now be clear to you, as I said above I hoped I should make it, that to take experience simply as given, avoiding the assumption that sensations are given as a chaos, does not involve the assumption of an orderly external world. Whether there is an external world, and whether it is orderly, we have to learn from analysis of experience as given. We are not to assume either that it is given orderly or that it is given chaotic. To assume order is to assume too much in the world, to assume chaos is to assume too much in the percipient. In either case a genesis of experience is assumed, and mixed up with pure analysis of it; and to that extent we are deserting experience and taking our stand upon fancies. If we *find* experience orderly, if we *find* some order in the stream of consciousness when we analyse it,—this surely is not a result to marvel or to grieve at, though it may have something in it humiliating to human conceit, as dispensing with the necessity of our assistance in creation, or, as Kant too modestly puts it, in " constituting objects ".

The fact is, that this extreme disorder and isolation in sensations, which Kant's theory logically requires, and which I have called a chaos, is an utter illusion. It is not only without proof as a fact, it is impossible as an imagination. It cannot even be *thought*. It is not merely a fiction, it is an unthinkable fiction, illusory even as a falsity. Yet it is on this illusion, with its necessary complement, the assumption of a real but unknowable agency in the Subject, that Kant's distinction between the phenomenal and the transcendent, or noumenal, rests, as well as all post-Kantian ontologies which build on that latter distinction. It is the inside of a soap-bubble.

But perhaps you will say to me, that without this assumption of chaos in sensations Hume is not answered, and therefore that, if it cannot be assumed, Hume cannot be answered. If Kant is not allowed to *assume* order and nexus in sensations on the ground that this would be no reply to

Hume, and so is driven to assume chaos, how can the *finding* of order and nexus in sensations be an answer to him? I reply, that *finding* order and nexus in sensations is very different from *assuming* them. *Finding* them as an inseparable and primordial fact in sensations convicts Hume of an assumption in supposing that they require accounting for, or in other words, that disorder and isolation are the primordial fact, while order and nexus are derivative facts. Kant *adopts* Hume's assumption, pushes it to its extreme, and then makes another assumption, causal agency in the Subject, to account for order and nexus. Kant assumes with Hume, that they require accounting for. Now to find them is not to account for them; and therefore it is, that Kant must logically assume chaos. He is with Hume looking for the *genesis* of order and nexus. And thus the ruin of Kant's theory is the ruin of Hume's assumption. But our present method, which directs us to ask first, *what* order and nexus *are*, before asking for their *genesis*, puts us on a track by which we perceive, that order and nexus are inseparable and primordial facts of experience, a perception which precludes us from assuming that they require accounting for, or seeking for their genesis. Thenceforward we have only to trace the development of one kind or mode of order and nexus out of another kind, that is to say, the order and nexus in the external world, and the order and nexus of logical ideas, out of the primordial order and nexus in the stream of consciousness.

This brings me to the second head under which I propose to consider the method, namely, its adopting the analytical distinction between *nature* and *genesis*, or *history*, as its guiding principle. So intimately and thoroughly is this distinction bound up with it, that much which also falls under the present head has been already said under the former one. In fact the analysis of anything cannot but be the analysis of *what* that thing is; and subjective analysis, of what that thing is known as. Nevertheless there is a gleaning which still remains to be gathered. Questions of genesis or history in one way come under questions of subjective analysis, since the events which they relate to are part and parcel of experience, and in another way they form a group apart from them. There is a comprehensive sense in which the question of analysis is to be entertained, which embraces under it both the question of analysis in a narrower sense and the question of genesis in a narrower sense. These questions in the narrower sense form two groups contradistinguished from each other, both being contained under subjective analysis in the wider sense. We have hitherto

been occupied with analysis in the wider sense, in which it includes the whole subjective aspect of experience. We have now to distinguish the two groups taken in the narrower sense from each other, and show how they combine and interlace, which will be also showing how the distinction between nature and genesis is the guiding thread of the method. In passing to this second head of the subject, we are not passing from analysis to genesis, but from the subjective aspect of experience as a whole, and subject to analysis as a whole, to the relation between the nature and the genesis of its parts, as two divisions of the whole subjective aspect. It is analysis which distinguishes between itself and genesis, just as it is light which manifests both itself and objects. The relation between analysis and genesis in the narrower sense, or between the two groups of questions which are contradistinguished from each other, is what I have now to do with.

What, then, is the meaning of the question *how comes* so and so, of the genesis of a thing, or the dependence of one thing on another? It means that, having separated in thought some one portion of the stream of consciousness from the rest, and analysed it *ad intra*, we proceed to ask what preceding or accompanying portion or portions of the stream are those without which it, being what it is, would not be when and where it is. Those portions are its *sine qua non* conditions, and on them it is said to depend for its genesis. The whole sum of such conditions of a given thing is called its cause, a definition of cause which Mill again has set his mark on, and which is perfectly sound when taken as a definition of method, to which I now restrict it. We begin by analysing a given thing, or portion of the stream of consciousness, and in order to assign its conditions, and bring them into relation with it, we have to analyse the conditions also. Every part or feature in the analysis of a given thing has its correspondent (I do not say *similar)* in some feature or features of its conditions. They then make with it a whole, consisting of a process or chain of causation or dependence, which is now analysed both in its parts and in their concatenation, so that our knowledge of it as a whole is again analytical. Analysis is the beginning and the end of the whole proceeding. We have thus a method which brings the whole stream of consciousness under examination.

But perhaps you will say to me, Why restrict yourself to conditions, when the first step of separating and analysing a given portion has been taken? Why not proceed to ask what its effects will be, what it will do, how it will behave, what it will be followed by? Why go backwards in the

stream, and not forwards in obedience to the dictum, *operari sequitur esse*, seeing that past experience offers us apparently equal facilities for tracing causes to their effects, as effects to their causes? The answer is plain. In going from a given analysed thing to its cause or sum of conditions, I have a limit to the inquiry; the analysis of the given thing tells me to some extent both what I want to know, and when I have got an answer to it. But if I go from that analysed thing to its effects, I have to collect all the other conditions into combination with which it may come, and according to which its effects will vary. A given analysed thing is a *sum* of effects, but it is only a *bundle* of conditions. It *focusses* the conditions on which it depends, it *scatters* the conditions on which its effects depend. To follow it in its effects, I must find out all its possible combinations, and distinguish the contribution of each of its component elements severally, in the results of each combination severally. This latter process is applicable in science, by means of actual experiment, for there we can vary the combinations and see by actual inspection how a given thing behaves in each of them; but it is not applicable in philosophy, where we are engaged in examining a content of consciousness by thought, for there both the combinations and the resulting effects must be imagined by hypothesis, and we do not attain a knowledge of the effects of a given thing, until we know the effects of each of its elements of analysis in all its possible combinations. This process, which is evidently hopeless, would be synthesis, prediction by imagination. The only true synthesis is scientific, consisting first in constructing hypothesis, and then in putting the things actually together in experiments which test the hypothesis.

I argue, therefore, that going backwards from effects to causes, so keeping strictly to analysis, is the only line practically open to a subjective method, which keeps strictly to experience, and begins with the analysis of given things. The opposite course can lead only to substitute imaginary anticipations in the place of facts. And that it actually does so is shown by the history of philosophy; for the deduction of the operation of things, taken as units, from their essence defined by *genus* and *differentia*, thus making them into causal agents, is the main idea which Scholasticism derived from Aristotle, and the application of which has brought philosophy to its present state of disintegration. It is to this synthetic or deductive method that I now oppose the method of backward-going analysis, a method which, I beg you to remark, covers the whole ground, just as much as the other. For, though we do not begin with looking for the

effects of a given thing, yet we come upon them in looking for the conditions of other given things; they appear under the name of conditions of B, instead of under the name of effects of A. But they appear as the connexion between A and B just the same.

Two things must next be noted, first, that this method of inquiring into the conditions of given things, or portions of the stream of experience, not only covers the whole ground of experience in the large, but also covers it down to the minutest portions. It is perfectly exhaustive and flexible, a telescope or a microscope at pleasure. Secondly, though covering the whole ground, it tells us nothing whatever of the nature of action or causation or efficiency. We know nothing from it of what makes a cause causal, or *what* a cause *is* in itself, or *quâ* cause. At the same time it does not preclude us from knowing it, if experience should ever give us that knowledge. These are questions with which, as method, it has nothing to do, and which it leaves just where it finds them. All it does is to provide for experience being rightly and sufficiently examined. The content of consciousness is the object-matter of the mechanism, or inherent logic, of consciousness.

Hitherto, you will observe, I have spoken indifferently of things or portions of the stream of consciousness, implying that the method was applicable generally, without distinction of content. That was my intention. But you may perhaps question its applicability to realities. You may say that it is applicable only to consciousness as such, to our thought of things and not to things themselves; in fact that it is a method of what some would call subjective logic, or idealism, and nothing more. I proceed, then, to show that it is applicable, not only to things and thoughts indiscriminately, but to both severally. But for this purpose I must of course presume, that this distinction is already drawn and established. To show how it is drawn and established would be to apply the present method, instead of merely describing and explaining it. I adopt, then, as admitted, the psychological distinction between material things and sentient beings, on the one hand, and states and trains of consciousness belonging to sentient beings, on the other, such states and trains of consciousness being the medium whereby sentient beings come by a knowledge both of themselves, and of material things.

You will observe, that this medium of states and trains of consciousness is what we have hitherto been occupied with; it is what we have called experience. And out of its content we are now supposed to have contradistinguished two classes

of objects, sentient beings as its psychological Subjects, and material things as the Objects of those psychological Subjects, both which classes of objects are held to be *real existents* in opposition to their matrix, so to speak, the states and trains of consciousness which constitute the knowledge of them, and out of whose content they have been distinguished. These states or trains of consciousness are *matrix* from the philosophical point of view, *medium* from the psychological. I have already shown the applicability of the method to this matrix generally. We have now to see its applicability to the matrix as opposed to, and distinguished from, those two classes of real existents; that is to say, to states or trains of consciousness as such, on the one hand, and to real existents on the other.

Now this applicability is effected in the simplest manner. The conception of *condition* becomes applicable to consciousness and real existents severally, by introducing into consciousness in general, that is, as matrix or medium, a distinction between conditions, corresponding to that already introduced into it between these two classes of objects. The conditions, upon which states and trains of consciousness as such depend, are themselves states or trains of consciousness; they are feelings, imaginations, volitions, or thoughts, antecedent to or concomitant with those to which they give rise, and fall under the general name of conditions of knowing a thing, *conditiones cognoscendi*. Among these are some which are conditions of knowing for certain, by way either of immediate inspection or reasoning. These are *logical* conditions of truth. The remaining class of conditions, those upon which real existents and their trains of action depend, are themselves real existents, or actions of real existents; and these are called by the general name of *real conditions*, or *conditiones existendi*. The method is precisely the same as above described; the distinction drawn in its cardinal conception of *condition* rendering it applicable to the distinction now existing in its object-matter.

But there is a circumstance to be mentioned, which has been the source of much confusion. States of consciousness, you will have observed, appear twice over, once as the undistinguished matrix or medium, and once as the opposite of real existents; a doubleness parallel to that noticed above in the case of analysis and genesis, and springing from the same root, namely, from the fact that Reflection is perception both of itself and its object, its *total* object being double, namely, self and object together. Here we have the same doubleness in the case of conditions. A state of consciousness has two sets of conditions, (1) other states of consciousness which

are its conditions *cognoscendi*, and (2) some action or actions of real existents which are its conditions *existendi*, I mean processes either in the sentient being, or in the external world in action and re-action with it. States of consciousness have thus a double aspect, (1) *quâ* content of consciousness, (2) *quâ* states of consciousness of a sentient being; and each aspect has its own set of conditions. They have thus a double dependence. As contents of consciousness, related to other contents, they depend on conditions *cognoscendi*, and as belonging to sentient beings they depend on real existents as their conditions *existendi*. When once the distinction creating psychology has been drawn, states of consciousness have to be treated under both heads of conditions, because they are placed, by that distinction, under two categories. But then the two kinds of conditions are distinguished for the express purpose of corresponding to these two categories, and properly treating the things which belong to them severally.

Resting on these two correspondent distinctions, and to meet the demands of this double work, we have the division of labour between psychology and philosophy. Psychology has nothing to do with consciousness *quâ* content, or with the relations of its parts as content, in which aspect it is the mirror or subjective side of the universe of things. That is the domain of philosophy. The business of psychology is with sentient beings, with the classification and examination of their faculties, the genesis of the various modes of their sentience and intelligence, and generally the real actions and re-actions between them and their environment. Dreams, for instance, are as much the object of psychology as truths, and in the same sense, namely, in their genesis and dependence on their real conditions, whether they be truth or dream; but dreams are not the object of philosophy in the same sense as truths are.

The province of psychology is marked out for it by the distinction between nature and genesis, which is the main distinction of philosophical method, and is a distinction drawn by philosophy. Without this distinction and method, the spheres of psychology and philosophy would be inextricably confused; which indeed is universally the case at present, the confusion often being carried so far as to assign to psychology the assumption of a conscious Subject and the analysis of its states of consciousness as such, while leaving for philosophy to investigate the nature, and prove, if it can, the real existence of this hypothetical Subject. In reality, psychology stands, with respect to distinction of province, in precisely the same relation to philosophy as the other positive sciences stand. The business of science is with real

conditions, that is, with real existents and their actions so far as they stand in causal relations to each other, and to other phenomena which depend on those relations, meaning by *other phenomena* such as are described by unanalysed terms of common life, an eclipse, for instance. Earth, moon, and sun, in certain relations, are what we have now called real existents; an eclipse is a resulting phenomenon.

Thus it is that the philosophical distinction between the questions *what* and *how comes*, which is the guiding principle of philosophical method, gives rise, when applied to experience, to the distinction between *nature* and *genesis* in the objects of experience; and, in further application to experience, compels the further distinction of conditions of genesis, into conditions *cognoscendi* and conditions *existendi*; and still farther, institutes on this basis a division of labour, or chart of the functions proper to philosophy, psychology, and the rest of the positive sciences. Each of the two classes of conditions rests on a basis of analysis. In every series of conditions we begin by analysing a given thing; and the analysis of it will be either an analysis *quâ* content of consciousness, or an analysis *quâ* existent; but in either case it will be analysis. The analysis of real existents will be into things really existent, and the analysis of contents of consciousness will be into other contents of consciousness. In either case, the members of analysis may be called, for convenience, conditions of the *nature* of the thing analysed, conditions of *what* it is, or, to use a Scholastic phrase, its conditions *essendi*. The whole method of philosophy may thus be summed up and characterised, as consisting in the determination of experience, under the three heads of conditions, *essendi, cognoscendi, existendi*.

In conclusion I must touch on a point which perhaps you may think I should have done better to begin with,—why the method which I have attempted to describe should be called the *metaphysical* method. I think I can now show you that the name is absolutely right, and exactly expresses what it ought to express, and implies what it ought to imply. In the first place, it is applied to the method which comes after the physical method, which is that of all positive science including psychology, counting from the original basis of all, which is ordinary knowledge, or knowledge in the form of common-sense. Science with its physical method comes next after that knowledge, and philosophy with its method comes next after scientific knowledge and completes it. This method is also the direct *opposite* of the physical, as I have shown above, and the name *metaphysical* includes and suggests this opposition.

Secondly, the name *Metaphysic* is applied, and has always been applied, to that inquiry which examines the nature of existence in the largest sense of the words,—*τὸ ὂν ᾗ ὂν, καὶ τὰ τούτῳ ὑπάρχοντα καθ' αὑτό*. Our present method examines this object-matter in the only way in which it can be examined, that is, subjectively, without any implication or assumption of *absolute* existence. *Metaphysic* therefore describes it better than *Ontology*, which by suggesting an opposition of Being to Knowing implies the assumption of Absolute existence. The kind of philosophy which I advocate is built upon experience, and upon experience alone, without the admixture of any *à priori* element, which I take to be a new step in the history of philosophy. But this does not weaken its title to be called *metaphysic*, since that name neither implies nor suggests the notion of *à priori* assumption.

Thirdly, by calling this method *metaphysical*, and that analytic branch of philosophy, which is constituted and demarcated by its application, *Metaphysic*, I mark the claim which I make on their behalf to be the most comprehensive and the same time the most thorough of all branches of intellectual pursuit or modes of knowledge. *Metaphysic* and *metaphysical* have always carried with them the implication of this *ultimate* character. They mark a kind of critical inquiry from which there is no appeal to any other intellectual tribunal. They mark the highest limit of human intelligence, where it is overshadowed and judged by the Divine. To call an inquiry like this by such a name as *Theory of Knowledge*—a name which assumes the distinction between Knowing and Being to have been already drawn,—would imply that the possibility of an Ontology beyond, on a basis of its own, was a question merely postponed for the present, and that the true method of philosophy as a whole had not been found. Whereas the name *Metaphysic* expresses a distinct claim to have discovered this true method, thereby reducing Ontology to rank as the Constructive Branch of a philosophy which consists essentially of subjective analysis, and embodies its results.

Lastly, I may say, that I chose the name *Metaphysic* in the first instance, because, appearing to me as it did the exactly appropriate one, it was treated, south of the Tweed at least, as a term of reproach and ridicule, following therein the fortunes of philosophy. It had become an object of unjust and ignorant contempt; and therefore to adopt it seemed to me a right and necessary challenge to superficial reasoners, though avoiding it would probably have secured a more favourable hearing.

IV.—GREEN'S METAPHYSICS OF KNOWLEDGE.

By Arthur James Balfour, M.P.

There is a manifest objection to reviewing in detail a fragment of any work, and the objection is specially strong when the work is one which develops through its whole course a continuous argument. The following paper therefore, which is exclusively devoted to the consideration of the first hundred pages or so of the late Professor Green's *Prolegomena to Ethics*, requires, by way of introduction, a few words both of apology and explanation. The apology rests partly on the circumstance that Green himself published the "Metaphysics of Knowledge" in a detached form (Mind XXV.-VII.), and that, *logically*, it does not suffer from being separated from its ethical sequel. It rests partly on the great interest which attaches, even in its isolation, to this section of his work. Of this interest the primary source is, no doubt, the force and originality with which the author has developed and enforced ideas which are not perhaps in the fullest sense, original. But it is also due in no small measure to what has always seemed to me a singular phenomenon in philosophic literature.

Every one who has given even a cursory attention to the progress of speculation in Britain during the last few years must be aware how important is the reaction against the systems of empirical metaphysics which in the hands of Mill, Mr. Bain, and Mr. Spencer, reigned supreme not long since. Of this reaction the most numerous and energetic promoters may be described without unfairness as belonging to one school. It is not meant of course that they can in any way be made responsible for each other's opinions, or that they do not differ profoundly even on points of great importance. What is maintained is that they have sufficient general resemblance in their modes of dealing with philosophic problems to make it not unjust to class them together in the same way as, without reproach, we are allowed to class together thinkers who differ so widely as Mill and Mr. Spencer. The members of this school are bound together by the common conviction that the solution of the larger problems of philosophy is to be sought along the path which was opened out by Kant, and further explored by Kant's German successors. It is true that the most Kantian of recent transcendentalists would probably never have been

described by Kant himself as his disciples, and that the most Hegelian would, I suppose, accept very little without qualification of Hegel's positive contributions to the theory of the universe. Still, much as they differ among themselves, their mode of attacking the problems of philosophy is sufficiently similar to make it just, as it is undoubtedly convenient, to give them a common name; and no name is perhaps more appropriate than that of *Neo-Kantian*, which indicates both their connexion with and their difference from the philosopher to whom they most often appeal.

By this school many valuable contributions to metaphysical literature have been made during recent years. But they have, I believe, been all, or almost all, of one kind. They have been devoted exclusively to criticising or expounding the views of previous thinkers; never, until these *Prolegomena* appeared, to systematising the opinions of any members of the school themselves. These opinions had to be collected from such works as Green's Introduction to Hume, or Professor Caird's treatise on Kant; works from which, naturally enough, information respecting the philosophy of Hume and Kant could be more easily extracted, than information respecting the philosophy of Green and Caird.

The singular uniformity with which this rule has been observed causes especial interest to attach to the first important violation of it; and the interest is greatly strengthened by the fact that Green, to whom this fortunate innovation is due, is the individual who, perhaps more than any other, has contributed by his writings and by his personal influence to the spread of the new ideas. We can now for the first time contemplate in a connected whole the outlines of the Neo-Kantian scheme of metaphysics; and it is surely of the greatest importance to the interests of Philosophy that a serious effort should be made by those who are not as yet prepared to accept the scheme as it stands, to explain where their difficulties lie. The following pages are intended as a contribution to this object. They aim neither at estimating the genius of the author of the *Prolegomena*, nor at investigating the sources from which his system may be in part derived. I have throughout treated the "Metaphysics of Knowledge" critically not historically as a body of reasoned doctrines, logically self-sufficient and self-contained, the value of which has to be tested by argument and by argument alone. I am aware that the result of this may be to give a controversial tone to the succeeding comments which in the opinion of many may seem unnecessary and even, under the circumstances, misplaced. But, after all, it is only by con-

troversy that an end can be put to a state of things in which it is possible for one school of thought tranquilly to pursue its way, not merely without understanding or answering the arguments of another school, but without apparently admitting that there is anything to be understood or answered. I do not of course suppose that I have been wholly successful in either understanding or answering: at least, however, I have tried; and the most unsuccessful attempt must prove of some value should it succeed in eliciting explanations or replies.

The most casual reader of the metaphysical portion of Green's book cannot fail to note the insistance with which one particular kind of argument is used whatever may be the subject with which at the moment he is specially concerned. Throughout the extended and minute criticism to which he subjected the philosophy of Locke, of Berkeley, and of Hume (in his Introduction to the works of the latter author) this argument is used critically; in the *Prolegomena to Ethics* it is used constructively. But whether used to destroy the systems of his predecessors or to support his own, the argument is so essentially one, not merely in substance but in form, that the author, wherever his book be opened and whatever be the conclusion he is desirous of establishing, always has the air of saying the same thing. Whether he be engaged in proving the existence of a universal spirit, or of individual intelligences, or of the relation of these to the material universe, or the reality of freedom, it is always to one particular analysis of the nature of knowledge that he appeals and on which in the main he rests his case: and he appears to have regarded it as his special mission in philosophy so to press this line of thought on the philosophic world that it could never again be forgotten or ignored.

The character of this argument and the general outline of Green's scheme, so far at least as is necessary to make the succeeding criticism intelligible, may perhaps be understood from the following summary.

Everything which is, or which can be, an object of thought is constituted by relations, *i.e.*, is made what it is by the relations of its parts to one another, and of its whole to other wholes, to the system of nature, and to the self-conscious Subject which distinguishes it as such an object from itself.

Unrelated sensations, so far from being "the real" or representing the real, are a "manifold" which can neither be perceived, thought of, nor intelligibly spoken about; are in short "nothing for us as thinking beings".

As objects are constituted by relations, so relations are produced by the activity of a self-conscious intelligence.

From these propositions it follows that the world of objects, the system of Nature, the context of experience, is produced by, and is dependent on, a self-conscious intelligence which, from the very fact that it is the condition of there being phenomena, cannot itself be a phenomenon, but must, as a "free cause," stand outside the universe of space and time which it constitutes an intelligible unity.

Since no one pretends that the universe is conterminous with the limited number of objects which he or his neighbours distinguish from their self-conscious selves, or is necessarily constituted by the relations under which he or they perceive it, it must follow that there is a single self-conscious intelligence to which the whole universe is relative, and of which all other self-conscious intelligences are a partial "mode" or "manifestation".

The metaphysical system, of which these propositions may be said in a general way to form the skeleton, is evidently a species of simplified Kantism; Kantism purged of "things-in-themselves" and denuded of the complicated architectonic structure with which its first author encumbered it. But while the avowed outcome of the *Critick of Pure Reason* was to show that a scientific knowledge of phenomena, but of phenomena alone, is possible, Green's "Metaphysics of Knowledge" professes to demonstrate the existence of individual self-conscious spirits outside the realm of phenomena altogether, and of one universal self-conscious spirit through which alone the world of phenomena exists, and of which all other intelligences are the imperfect manifestations. If his system is simpler than that of his master it is therefore much less negative in its speculative results.

Now it must be evident, I think, to anyone who has read the foregoing summary of Green's doctrine, and still more evident to anyone who has glanced at his writings, that the whole fabric of his philosophy rests on his theory of relations; and that his theory of relations consists mainly of these two propositions: first, that objects are constituted by relations; secondly, that relations are the work of the mind. In defence of the first of these assertions Green chiefly concerns himself with refuting what he conceived to be the alternative theory, that, namely, according to which the reality of objects consists in, or at least is represented by, unrelated simple sensations. With this theory, which Green attributes to Locke and to the whole empirical school whose philosophical pedigree may be traced to Locke, I have nothing to do. Those who hold it may be left to defend it. But in Green's own view there appears to be a difficulty which he has himself pointed out (pp. 45 ff.) with his usual force and fairness, but of which the statement appears to me to be more successful than the reply. The difficulty is this. If the world of experience consists solely of relations, what are these relations between? Let it be conceded for

the sake of argument that however far we carry back the analysis of what constitutes an object, we still find ourselves dealing with relations; are we not still compelled to believe that there cannot be relations unless something other than relations exists to be related, even though this "something" (apart from its relations) is "nothing for us as thinking beings"? And if this be so, does the transcendental theory, in Green's hands, save us after all from the philosophic dualism of which he is so much afraid?

This objection Green attempts to meet, if I understand him rightly, by showing that simple sensations, unqualified by thought, are an unmeaning abstraction, have no place in the world of experience, and cannot therefore, since in truth they are *nothing*, be the original cause or matter of *anything*. This may be true, but it does not really meet the point. In the first place, there is no need for us to suppose, as Green seems to think we must suppose, that this "not-thought" is simple sensation. In the second place, we are not obliged to imagine that by itself and apart from relations it is a possible object of experience. He does not perceive that it is possible to regard the "matter" of thought as necessary without also regarding it as independent. And therefore while he repeats with unwearied iteration that relations are necessary to turn sensations into facts, he seems to consider this a reason for ignoring the correlative and not less obvious truth that sensations, or, if not sensations, material of some kind, are necessary in order that relations may have something to relate. The analogy of symmetry would therefore seem to suggest a dualistic addition to Green's theory. On that theory, as we have seen, the world of experience consists of related objects and of these alone, and as it assumes the existence of a single spiritual principle, which is the source of all relation, so it would seem but natural to suppose the existence of a non-spiritual principle which should be the source of that between which the relations are. If it be objected to this that the supposed non-spiritual principle is not an object of possible experience, I reply that neither, on Green's own theory, is the universal spiritual principle an object of possible experience. If I be asked why we should thus suppose the existence of that which is not an object of possible experience, I reply, as Green replies (p. 54) in respect of the spiritual principle, that "its existence is implied in the existence of the world". In short, if that which is related is, apart from its relations, an unthinkable and therefore non-existent abstraction, not less unthinkable and therefore equally non-

existent must be relations apart from that which is related; and if relations require a source, so must that which relations qualify.

I am unable therefore to agree with the modern exponents of the Kantian philosophy who see in Kant's doctrine of 'Things-in-themselves' the results of inveterate prejudice, a mere survival of a mode of thought which Kant himself supplied the means of destroying. Holding, as he did, that the 'Pure Ego'—which for the purpose of the present argument may be identified with the Spiritual Principle of his English followers — is the source of relations (categories) and of these alone, he seems to me more logical than they in seeking elsewhere a source for that element in the knowable which does not consist in relations. And if (which I am far from denying) his doctrine be open to the objection made against it by Green (p. 44) and others, namely, that in asserting things-in-themselves to be the *cause* of phenomena, Kant was employing a category to explain the world of experience which could only be legitimately used within that world; Kant might retort that whether true or not, it scarcely lies with his Neo-Kantian critics to make the charge. For if Green's canon as to the limits within which the categories may be applied permits him to say that "nature results from the activity of the spiritual principle," it surely cannot be very seriously violated by Kant's assertion that nature is in part caused by the action of 'things-in-themselves'.

These observations naturally bring us to the consideration of the *second* principle of Green's theory of relation, namely, that relations, and therefore a world which consists of relations, are the work of self-conscious intelligence. Now it must be noted that this principle involves two propositions, the first of which is that relations *exist only for* a self-conscious intelligence, the second of which is that relations *are due to the activity of* a self-conscious intelligence; and of these two propositions, while the second can hardly be held without the first, the first may well be held without the second. The second, however, though not treated separately by Green, is an essential part of his system. The active, productive, creative character of mind is too often and too earnestly dwelt on by him to leave any doubt as to the importance which he attributed to it. On it, as it relates to the universal spiritual principle, depends his Theology; on it, as it relates to individual intelligences, depends his theory of the Freedom of the Will, and through this the whole scheme of his Ethics. In considering the proof therefore

which he gives of Intellectual Idealism, this side of his doctrine must not be lost sight of.

Considering how fundamental a portion of his system this doctrine is, it certainly seems to me to have been treated by the author with less fulness than its importance, and with less clearness than its difficulty, renders desirable. The official proof, which will be found in chap. i., §§ 26-9 of the *Prolegomena*, may be summarised as follows.

It being granted that the world of experience consists in "a single, all inclusive system of relations," the question remains "what is the condition of its possibility?" "What is implied in there being such a world?" Now "relation involves the existence of many in one". One thing is only one thing because it involves many relations, one relation is only one relation in so far as it is between manifold things. "But a plurality of things cannot of themselves unite in one relation, nor can a single thing of itself bring itself into a multitude of relations." . . . "There must, then, be something other than the manifold things themselves which combine them without effacing their severalty. . . . With such a combining agency we are familiar as our intelligence." A relation of successions, for instance, between two sensations is only possible if on the one hand they are united, and if on the other hand the distinct being of each is maintained. "But if it were not for the action of something which is not either of them or both together, there would be no alternative between their separateness and their fusion," and "the same or an analogous action is necessary to account for any relation whatever". Hence the world of relations, if it is to be real for us, must be the "product of our combining intelligence"; and "if it is to be real otherwise than merely for us," it must be "the product of some unifying principle analogous to that of our understanding".

Now whether Intellectual Idealism be true or not there seems to be the gravest objection to this mode of establishing it. Related objects must be, it appears, at the same time both many and one. Left to themselves, however, and without the assistance of some "combining agency," they would be condemned either to be united in a "featureless identity," or separated in a rigid isolation. The one never would become many, nor the many one. If we are to avoid such a consummation a "combining agency" of some kind has therefore to be found, and as none presents itself adequate to the task except intelligence, by intelligence it must be accomplished. There certainly appears to me to be something eminently unsatisfactory in this method of procedure. The philosopher is made to look about for something which is involved in the existence of a connected system of nature, much as a geologist looks about for what is involved in the existence of an ancient moraine. And as the geologist assumes a glacier as the only thing which renders a moraine possible, so the philosopher assumes a

"combining principle" as the only thing which renders a world of experience possible. But in so doing is he not employing a method of investigation, useful and legitimate within the sphere of science, but wholly inapplicable to the elucidation of a problem in metaphysics? How can he tell what nature would be without mind? How does he know that it would be a "manifold," incapable by itself of bringing itself into a unity, without at the same time being lost in a "featureless identity"? How again is it possible to say that this is a task which mind can perform, unless we can observe the action of mind on a "manifold" in the same way that a chemist observes the action of an acid on a metal, *viz.*, by first seeing them separate and then seeing them together? Yet is not this an operation which we are told even more emphatically by the transcendental system than by any other is impossible? The analysis of experience on which that system is based, professes to show, positively, of what elements the knowable consists, and, negatively, that as these elements cannot exist apart, one of them cannot be the cause of the other. It shows, for instance, or professes to show that, as the phenomena of the material and organic world are nothing except in so far as they exist for a self-conscious mind, a self-conscious mind cannot be their product. To this reasoning I am not concerned to raise any objection. But is not the very principle on which it rests violated by the attempt to draw a distinction between these necessary elements in knowledge; a distinction according to which one is to be regarded as active, the other as passive, one as real *really*, the other as real only relatively (p. 104)? If mind and nature form one inseparable whole, if they cannot be put asunder without at once becoming meaningless abstractions, then one cannot be before or after the other, and it becomes in the highest degree inappropriate to describe the indivisible whole as specially the product of either of its essential members. Or, if we do so describe it, we must allow that it is as correct to say that nature makes mind as that mind makes nature; that the World created God as that God created the World. The truth is that "the analysis of the conditions which make experience possible" (p. 18) is an operation for which more magnificent results are claimed than it can always legitimately produce. The analysis of a material object consists in breaking it up into those other material objects which are its elements, and it is only when we know something of the properties of these elements as they exist separately that we regard our analysis of the whole as satisfactory. But the transcendental

"analysis of the conditions which make experience possible" may tell us what elements are necessary to constitute experience, but never can tell us anything about them apart from the experience which they constitute; and for this plain reason that apart from experience neither they nor experience are anything.

It may perhaps be said in answer to these observations that I am wasting time in refuting a theory which after all Green has himself expressly repudiated. And this is in a sense unquestionably true: for on pp. 56, 57 of the *Prolegomena* we are given fair warning that, if the author uses language to express the relationship of the spiritual principle to nature which "strictly taken" implies that this relationship is that of a cause to its effect or of a substance to its accidents, it must be "on the clear understanding that this language is of a metaphorical character". This disclaimer certainly appears to be sufficiently explicit, yet the more it is examined the more difficult does it seem properly to interpret it. In the first place it is purely negative. It tells us what Green does not mean when he uses certain language; it wholly fails to explain what it is that he does mean. Yet this is after all the important point. Philosophy is not poetry; it cannot be content to use language which makes no nearer approach to a meaning than that of vague suggestiveness. It cannot be permitted, like mathematics, to introduce into its reasonings expressions incapable of interpretation; and if it uses metaphor at all it must be as an occasional luxury, not as its daily bread. Yet I think that every candid reader of the *Prolegomena* will admit that this ascription of causal or quasi-causal activity to the self-conscious intelligence is no mere rhetorical figure but is ingrained in the very substance of Green's system. I take as specimens two short extracts in addition to those I have already given, from among scores which might be quoted.

"We have followed him (Kant), as we believe every one must who has once faced the question, in maintaining that a single active self-conscious principle, by whatever name it be called, is necessary to constitute a world of experience, as the condition under which alone phenomena, *i.e.*, appearance to consciousness, can be related to each other in a single universe. This is the irrefragable truth involved in the proposition that the understanding makes nature."[1]

And again:—

"The difficulty of saying what this all-uniting self-seeking self-realising subject is, arises from its being the only thing, or a form of the only thing,

[1] P. 40.

that is real in its own right; the only thing of which the reality is not relative and derived." [1]

These utterances "strictly interpreted" mean and can only mean that the world is the creation of an active intelligence:—I do not say of course that it is posterior to this active intelligence in *time*, for there is, on Green's theory, no time-relation at all between the two. But though we are required to hold that the world of experience is neither after mind, nor before mind, nor (I suppose) simultaneous with mind, we are also expected to believe that it is "made" by mind, that it is "constituted" by mind, that it is passive while mind is "active," that its reality is derived from mind, while the reality of mind is not derived from it. This relationship may not be the same as that which, in the world of phenomena, obtains between a cause and its effect. In fact as time-relations are altogether excluded it cannot be. But unless the language of the *Prolegomena* is not only metaphorical but meaningless, unless "action" is the same as passion, unless "to constitute" is the same as "to be constituted," unless Neo-Kantism is after all a dualistic and not a monistic system, it certainly appears to me that Green's theory, notwithstanding his explicit disclaimer, is open to the objection I have ventured to urge against it.

So far I have been considering (1) how it is possible to prove on Green's method that nature consists of relations, and (2) how far it is possible to prove that relations are the "work of the mind". We now come to a third problem or group of problems involving subjects of even greater subtlety and complexity than those which have already been touched on, and which are rendered specially difficult to treat satisfactorily from the circumstance that questions which are really separate are not always discussed separately by the author.

Conceding then, for the sake of argument, the general position that the contents of experience are the product of self-conscious intellect, what grounds have we for assuming the existence of any such self-conscious intellect besides that one which every man is conscious of within himself, and, if we may assume its existence, what is its nature and in what relation does it stand to each one of ourselves. Or to put the questions in a form somewhat less general but more suited to our present purpose—by what right may we assert the existence of a Universal Spiritual Principle, and how are we related to it?

[1] P. 104; *cf.* also § 63, p. 68.

The main argument by which Green answers the *first* of these questions I have already briefly stated. It may be expanded somewhat as follows.

> Mind makes nature ; but if it was my mind or your mind that so made it, nature would exist only so far as you or I understood it. It would come into being with our life, it would perish with our death, it would vary with our knowledge, it would be limited with our limitation. But nature is not so limited nor are the relations which constitute it thus variable. They form a "single unalterable all-inclusive system," and as such they imply the existence of a "principle of unity in relation," which cannot be other than universal spirit.

The first question which this argument suggests to the sceptical critic is—how do we arrive at the fact of there being such a system of nature as is here described? By hypothesis it cannot be known immediately, because it is owing to our *not* knowing it immediately—to its *not* existing in its completeness in our own consciousness—that we have to assume a consciousness in which it does so exist. If then we do not know this all-inclusive system immediately, on what evidence and by what process of inference do we arrive at it? This question, natural though it may seem, is for some reason, the character of which I do not venture to conjecture, commonly treated by the Neo-Kantians with a certain measure of impatience. Green has treated it not indeed with impatience, but with a brevity which, from the reader's point of view, is much to be regretted. His observations on it are as follows (p. 30).

> "It would no doubt still be open to the sceptic to suggest that the validity of our conclusion depends upon there really being such an order of nature as the quest of knowledge supposes there to be, which remains unproven. But as the sceptic, in order to give his language a meaning, must necessarily make the same supposition—as he can give no meaning to reality but the one explained—his suggestion that there really may not be such an order of nature is one that conveys nothing at all."

If this answer be accepted at all, it must certainly be accepted as adequate. No reply can be required to a question which has no meaning. But can this be seriously maintained? Is it the case that reality only means and can only mean "determined by a single unalterable order of relations" (p. 17), and that therefore to enquire whether such a single unalterable order of relations *really* exists is nonsense?

It appears to me that in this matter Green has been led into error by confounding the habitual practice with an inevitable necessity of thought. It is most undoubtedly true that we regard nature as consisting of a uniform system, and

that when we say that a phenomenon is real we mean that it *is*, just as when we say that it is illusion we mean that it is *not*, determined by those relations in this uniform system which appear to us to determine it. But this way of looking at things, though habitual and, indeed, practically inevitable, is not speculatively necessary. Other views of the "world of experience" might be held without self-contradiction. We might suppose, for instance, that there was an objective system of nature (*e.g.*, in Green's language, a system constituted by a world-consciousness of which ours is a limited mode) which should not be uniform, or not uniform in any sense required by science; and in which all the relations might not only be variable but might vary arbitrarily. Again, we might suppose that there was no objective system of nature at all: that ours was the sole consciousness in existence, and that there was no world other than that which was constituted by the successive phenomena which that consciousness comprehends. These suppositions, if true, would doubtless render science impossible. But since, so far as appears, they are neither self-destructive nor, properly speaking, incredible, it cannot be legitimate to build up a speculative system upon the mere assumption of their falsity. Let us grant however that, as there is a world of experience, there must therefore be a world-spirit to which it is relative; and let us proceed to consider what is, I think, the most difficult part of Green's doctrine—I mean his views of the nature of consciousness in general and of the relationship of the universal consciousness to our own.

His exposition is in some respects obscure, and not always verbally consistent; but it may I believe be summarised without substantial injustice somewhat as follows.

Knowledge, *i.e.*, the "content of a knowing consciousness," is of a "related whole". The members of this related whole, the elements in other words, which collectively make up the things known, are all "necessarily present together" (p. 61), "neither before nor after one another" (p. 61), "without any lapse of time however minute" between them (p. 62), to the self-distinguishing consciousness from whose "action" they "result" (p. 68). This is so, whether what is known be a uniformity of nature or a succession between events. Hence the knowing subject, itself free from time-conditions, is an "agent for the neutralisation" of time (p. 71); hence also knowledge, *i.e.*, the content of a knowing consciousness (as, for instance, a proposition of Euclid *quâ* known), cannot be properly described as a phenomenon; and though its acquisition or its loss may be events, in itself it is not an event. These are characteristics of knowing consciousness in general. But *our* consciousness has in addition the apparently (p. 72) contradictory attribute of a history in time. "It seems to vary from moment to moment." It apprehends processes of becoming in a manner

which implies that past stages of the "becoming are present to it as known facts; yet is it not itself coming to be what it has not been? It will be found that this apparent state of the case can only be explained by supposing that in the growth of experience, in the process of our learning to know the world, an animal organism, which has its history in time, gradually becomes the vehicle of an eternally complete consciousness. What we call our mental history is not a history of this consciousness, which in itself can have no history, but a history of the process by which the animal organism becomes its vehicle." It must not be supposed however that, because we have a consciousness which, since it apprehends succession in time, is itself out of time, and also a consciousness which "varies from moment to moment, which is in succession, and of which each successive state depends on a series of 'external' and 'internal' events," therefore we have a double consciousness. On the contrary, we possess but a single consciousness:[1] "only in seeking to understand its reality we have to look at it from two different points of view; and the different conceptions that we form of it, as looked at from these different points of view, do not admit of being united, any more than do our impressions of opposite sides of the same shield".

Such is Green's solution of the problem which has to be dealt with by every system which distinguishes between the "pure" and the "empirical" Ego, the universal reason which is not in time and the individual consciousness which has a history. The difficulties which beset this solution are, however, not fully apparent either in Green's exposition or in my abstract of it. For it requires us to believe that to *learn* is an event, to *forget* is an event, to *know* is not an event; that knowledge therefore, though its beginning is in time, and though its ending is in time, is itself not in time. It requires us further to hold that the universal consciousness, which is not in time and which has no history, yet carries on a gradual process of self-manifestation which is in time and which has a history. In other words, that that which is timeless and immutable is at different times at different stages of development. And lastly it calls upon us to accept two contradictory accounts of our own consciousness, with no more satisfactory attempt at their reconciliation than that which is provided by the assurance that only by holding them together can we form an adequate account of the truth as seen from two different points of view.

Before, however, we accept doctrines which, whether true or not, in their form appear rather to resemble theological

[1] Here and elsewhere Green causes much difficulty to the reader by not distinguishing accurately between a physical phenomenon and its physical or physiological condition. He tells us (p. 72), that "the consciousness which varies from moment to moment . . . consists in . . . successive modifications of the animal organism". Of course he cannot mean this. The crudest school of materialism would scarcely accept it. I have therefore refrained in the text from crediting him with the doctrine.

mysteries than philosophical conclusions, let us examine a little more closely the reasoning on which they are based. The natural, indeed the only, foundation on which we can rest any theory about consciousness in general is of course an analysis of our own consciousness in particular; and it is this analysis which, in Green's hands, yields the first of the above paradoxes, namely, that *to begin to know* is an event or phenomenon, *to know* is not. This timeless character of knowledge is proved by an examination of "the content of a knowing consciousness". If we consider such a content, as, for example, a proposition of Euclid, we no doubt find, as Green points out, that the system of relations of which it consists is in a sense independent of time. It is the same at one period as at another, nor is there any succession between its parts. And this is no doubt equally true when the "content of the knowing consciousness" is a relation of succession in time. The content for example of a consciousness which knows that George IV. succeeded George III. does not consist of two successive acts of apprehension, but in the single apprehension of two successive events. But though this be so, yet surely it is only by that very process of "illegitimate abstraction" which in other connexions the Neo-Kantians so energetically denounce, that we can draw from such premisses the desired conclusion. Separate the relations known from the knowing subject, the content of consciousness from consciousness itself, and knowledge may seem independent of time. But if we refuse thus to separate verbally what can never be separated really, it immediately becomes plain that knowing is as much an event in the history of mind as learning or as forgetting. Though we may say, if we please, with the Idealists, that everything which exists, exists only so far as it is known, yet is it necessary to add that, if other minds resemble ours, everything which is known is known by a particular consciousness at a particular time. The language of Green himself is a witness to the impossibility of excluding time from any account of knowledge as a concrete fact. For when he assures us that the elements of the thing known are "necessarily present together," are "neither before nor after one another," are not separated by "any lapse of time, however minute," what is he doing but telling us that they are all apprehended by the same knowing subject at the same time? And how can the knowing subject apprehend things at the same time, unless it apprehends them at some particular time? And how can that which it does at some particular time be other than an event in its history?

If I might hazard a conjecture, I should say that Green was misled in this matter by an error similar to that which mars his theory of reality. As in dealing with that subject he seems to have supposed that all those who did not hold with him the opinion that reality consists in relations, necessarily accepted Locke's theory that reality consists in simple sensation; so in dealing with the nature of the conscious self he seems to have thought that the only alternative to his view that mind is a unifying principle not in time, is Hume's theory that mind is nothing more than a stream of mental phenomena.

"We thus avoid," he says (p. 63), "the necessity of facing the question how an object determined by relation can have its being *in a consciousness which consists of a series of occurrences.* Even 'knowledge,' though we often mean by it a system of known facts or laws, is apt to lose this sense when we speak of it as a form of consciousness. It then becomes merely the mental event of arriving at an apprehension of related facts. It does not represent the relation of the facts in consciousness. That there must be such a relation of them in consciousness, and *that a consciousness consisting of events cannot contain such a relation*, is a conclusion which we avoid by eviscerating knowledge of its content and transferring this content from consciousness to 'external things'."

Let it be observed in passing that, however absurd may be the view that consciousness, *i.e.*, a conscious self, consists of events, the reasoning by which in this passage it is refuted, though common enough in transcendental writings, is open to grave suspicion. It is surely dangerous to talk of that transcendental "combining agency"—the self—as an inventor talks of a machine: 'constructed in this way it cannot perform this;—constructed in the other way it may perform that'. Reasoning of this kind presupposes a general knowledge of mechanics applied to the criticism of a particular machine. But we have no such general knowledge of the mechanics of consciousness. We know perhaps something about our own, what it is and how it acts. But we cannot infer from this how a consciousness of an entirely different kind would act; we cannot make a working model of it; we cannot even in the vaguest manner imagine what it would be like. Though it may therefore be correct to say that, since "a consciousness consisting of events" is a meaningless expression, no assertion about it can be significant, it cannot be correct to suggest, as Green certainly does suggest, that by contemplating the structure of this hypothetical consciousness we can *a priori* discern its incapacity for knowledge. By direct intuition we may assure ourselves that we are something more than a succession of mental phenomena; it is superfluous therefore, even if it be possible, to deduce from a general theorem re-

specting an inconceivable form of consciousness a particular truth respecting our own consciousness, from which this general theorem, if it has any meaning at all, must itself be an inference. Passing by this question of method, however, let us ask whether Green is right in assuming that if the knowing subject is not a stream or procession of thoughts it must, as the only alternative, be out of time and therefore without a history. That this view leads to great difficulties, that it obliges us to hold two views of consciousness which Green admits cannot be united, and which are perhaps more accurately described as in flat contradiction, we have already seen. That the analysis of the "content of the knowing consciousness" gives no countenance to it I have attempted to show. Is it not also true that ordinary reflection suggests a view which, if not without its difficulties, is free from many of those which beset the theories we have been considering? Most persons unbiassed by system would, I suppose, agree with Green in thinking that we are something other than a mere pageant of passing thoughts and emotions. But they would differ from him in holding that this "something more," this self, persists through these unceasing changes, has a history and is in time.

Consciousness which thus testifies against Green's account of what it is in itself, testifies even more clearly against his theory of what it is in relation to the Eternal consciousness. This relation is, as we have seen, described as that of a "mode" or "manifestation". Now, whatever be the full meaning, in this connexion, of these terms, they must at all events signify that the thing which is a mode and manifestation is in some way a part of, and is so far identified with, that of which it is a mode and manifestation. But this identification of the finite with the eternal consciousness, though it may doubtless have profound significance in the region of religious aspiration, has, I venture to think, no legitimate place in transcendental philosophy. The very foundation of Green's version of the Critical system is that in every act of knowledge the "I" distinguishes itself from what it knows. How then can it know itself as identical with another consciousness, so long as it can know anything about this other consciousness only on condition of its knowing itself as distinct from it? If this be not so, what becomes of the argument by which the doctrine that consciousness does not consist of changing phenomena is deduced from the fact of our necessary self-distinction from these changing phenomena (see *e.g.*, p. 56)? If we can be identical wholly or partially with that from which in knowledge we necessarily distinguish ourselves,

then we may be after all a series of mental phenomena. If we cannot be identical with that from which we thus distinguish ourselves, then we cannot be a mode of the eternal consciousness. In the first case we must give up our author's theory of nature, in the second his theory of God.

It seems probable that both the opinions I am combating, namely the opinion that consciousness in not in time, and the opinion that our consciousness is a mode of the eternal consciousness, arise from the too abstract theory of the "Ego" which Green held, or at all events occasionally suggests to his reader. On page 72 he asserts that we "only" know the eternal consciousness as "a principle of unity in relation". It seems natural to argue from this that, in proportion as this eternal consciousness succeeds in reproducing itself in us, we also approach the condition of being mere "principles of unity"; and that if any one of us reach the stage of being a "completed consciousness" he would then be a principle of unity and nothing more. If this was his opinion it is not difficult to see how he arrived at the further view that we are, *qua* knowing, both out of time and also a mode or manifestation of the eternal consciousness. For it may be admitted, in the first place, that what is only "a principle of unity" can have no history, and, being a mere logical or metaphysical abstraction, is abstracted, among other things, from the notion of time. It may be admitted, in the second place, that two "principles of unity" can hardly be distinguished except by differences in that which they have unified, *i.e.*, in their thoughts. And it may be admitted, in the third place, that thoughts which are not in time, and which have the same content, must be regarded not only as familiar but, for want of any principle of distinction between them, as absolutely identical. In so far therefore as our thoughts are true and thus the same as those of the universal consciousness, we may no doubt be described as its mode or manifestation, and could we become a "completed consciousnesses," *i.e.*, could the "content of our knowing consciousness" be precisely assimilated to that of the universal consciousness, then all difference between it and us would be totally obliterated. But such a theory as this is in truth (as I have just said of a cognate error) the result of illegitimate abstraction. We are essentially more than mere "principles of unity". Consciousness is something besides the bare geometrical point through which must pass all the threads which make up the web of nature. And this *something*, though to each man unique, and therefore incapable of description, is that "self" whose being can never be in any

degree shared with, or merged in, the personality of another. We are who we are, and only who we are; and shall be thus isolated and self-centred so long as we are at all. To assert that the opposite doctrine, which has been a cardinal dogma of vast systems of religion and philosophy, which sages have taught and nations accepted, is unintelligible and unthinkable, would be presumptuous. But I may be permitted to conjecture that, if half the metaphysical ingenuity which has been expended on its defence had been used for the purpose of presenting it to the judgment of consciousness in its simplest and clearest form, it would have seemed to others, as it certainly seems to me, intrinsically and immediately incredible. It may be added that an eternal consciousness of which all that we know is summed up in the proposition that it is a "principle of unity," can never be a fitting object of love, reverence, or indeed of any emotion whatever but philosophical curiosity; and if our fellow-men excite in us any warmer feeling than this, it must be because they differ from, not because they resemble, that universal reason of which, according to Green, they are, though partially and inadequately, the manifestations.

There is yet another difficulty suggested by Green's views respecting the eternal consciousness of which, on his own principles, I do not clearly see the solution. In his theory of knowledge it is, as we have seen, a cardinal principle that everything which is known is constituted by the relations with which the knowing subject qualifies it. Apart from such qualification it is nothing for us as thinking beings: and if nothing for us as thinking beings, then nothing absolutely. Now in order that we may say anything intelligently about the eternal consciousness it is clearly necessary that it shall first be an object of knowledge; and as such, must, like other objects of knowledge, be constituted by relations. If this be so we are forced to adopt one of two conclusions. Either the eternal consciousness exists as part of that related content of experience which is unified by consciousness; or it exists otherwise than it can be known. In the first case we must, it would seem, abandon the transcendental metaphysics of being, in the second, the transcendental metaphysics of knowledge. To this it may perhaps be replied that, though doubtless the eternal consciousness can only be known by us as "object" and therefore as other than it is, it necessarily knows itself as subject, and therefore as it is, thus differing from a "thing-in-itself" which is unknowable on any terms. But this does not really meet the objection. The point of that objection lies in the fact that we cannot intelligently say that the eternal reason knows

itself, since it is impossible that the eternal reason, as defined, should be anything for us as thinking beings, and we can say therefore nothing intelligently concerning it at all. That is not known which is not in consciousness. That cannot be known which cannot be brought into consciousness. Thus things-in-themselves cannot be known because they can only come into consciousness on condition of ceasing to be "things-in-themselves". Thus also the eternal "subject" cannot be known because it can only come into consciousness on condition of being an object. To say therefore that I have any knowledge, direct or indirect, either of things-in-themselves or of the eternal consciousness is something like a contradiction in terms. The nature which in words we ascribe to them is one with which the essential constitution of our knowing faculties makes it impossible we should ever become acquainted.

With this criticism, which, if valid at all, is manifestly capable of very wide extension, I close this brief survey of the argumentative basis on which rests the Neo-Kantian system as it was conceived by Green. Let me conclude this article by taking note of the singular resemblance which this system itself, in its general outlines, bears to that of a philosopher to whom its author would certainly have conceived himself to be in no way specially indebted. Kant, as the reader knows, is the philosophical progenitor to whom Green would in the main trace the leading characteristics of his theory; yet strangely enough it is Berkeley's general conception of the universe to which, by a kind of *atavism*, Green's bears the strongest resemblance. The technical language in which the two thinkers express themselves is so different, the points from which they attack philosophical problems are so widely separate, their dialectic is so utterly unlike, that we may easily be tempted to forget how nearly similar are the results at which they finally arrive. Berkeley by an examination of the nature of perception, Green by a criticism of the conditions of experience, alike reach the conviction that the world of objects exists only for mind; both deduce from this the reality of freedom; both assume the existence of a universal spirit in order that their idealised universe may be something more than the phantasm of the individual consciousness; with both this assumption develops into something which resembles, though it never actually becomes, a species of Pantheism. Yet it happens strangely enough that, with all this agreement in the substance of their creed, Berkeley is the philosopher whom Green has treated with least sympathy. He never forgot that Berkeley was a sensational,

while he was an intellectual idealist; and this single difference obscures his perception of, or at least destroyed his interest in, their many points of likeness. Moreover he never quite forgave Berkeley for philosophising (as he said) with a theological object; not perhaps sufficiently considerthat he might himself be accused, with not less justice, of philosophising with an ethical object. Both accusations are true, and neither is discreditable. Speculation, dealing as it must with subjects so vast and yet so near to us as religion, science and morality, can rarely be pursued by perfectly colourless intellects; and could not in all probability be pursued by them with any exceptional success. We are human beings and not investigating machines. But though this be so, or rather because this is so, we are specially bound to examine with anxious and impartial care every system with whose conclusions we are in general sympathy; and if the reader has been tempted to think that in the preceding pages I have not sufficiently dwelt on the broader aspects of the *Prolegomena*, that I have seemed too little aware of the subtlety and suggestiveness of its metaphysics, or of the moral fervour which in so strange and attractive a manner pervades even the most scholastic reasoning of its ethics, I ask him to believe that this arises from no lack of appreciation on my part. I go further and say that, though I demur to their being regarded as portions of a reasoned philosophic system, I do not refuse to accept in their most general sense, and with some qualifications, the conclusions on which Green insists. It is not therefore with the desire of shaking these that I have been occupied with a technical discussion of the technical arguments by which they are sustained: it is rather in the belief that the sole hope of our being able in the first place to discover a reasoned theory of the universe, and in the second place to agree about it when it is discovered, lies in the mutual criticism of all who are anxious for the progress of speculation. So wide are the differences which separate opposing schools that much of such criticism must necessarily be irrelevant through want of mutual comprehension; but even when it is irrelevant it is not necessarily useless. We may not unreasonably suppose that where there is much misapprehension there may be some obscurity, and that when the precise character of this obscurity is thus made known by its consequences, it may in part, at least, be found capable of removal.

V.—RESEARCH AND DISCUSSION.

BILATERAL ASYMMETRY OF FUNCTION.

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I.

The problem of the relation of right- and left-sidedness to the more general law of bilateral symmetry has not yet been studied with the method or comprehensiveness which it requires and which is now possible. The vast clinical, physiological, popular, and historical literature upon the subject (of which we are preparing a bibliography), presents so much interesting material that before recounting our own studies, we must first briefly resume some of the more important results now claimed.

It has been said, on a basis of more or less careful and averaged measurements or other observations, that the right and left eyes often have slightly different near and far points and different powers of accommodation and discrimination, both of form and colour; that the bulbi have different degrees of rotary mobility and the pupils unlike apertures; that it makes a difference in apparent projection-distance whether an object be seen with the right or left eye, so that we ought not to say identical points with reference to an object, but coincident points, as if the retinæ were laid one within the other like two cups; that if we point at an object with both eyes open we shall find, on closing each eye alternately, that we have instinctively pointed in the line of the right eye, or *vice versâ*, if we are left-handed; that the outer angle which a vertical makes with a horizontal line in monocular vision seems greater by about half a degree for the left than for the right eye; that the error in putting the finger through a ring is greater when the right than when the left eye is closed, so that a true, mean, cyclopean eye would be slightly to the right of the median line; that in short the right eye is commonly the best for microscopic or macroscopic work, and is less liable to many forms of disease and congenital defects. And yet, though an expert stereoscopist does not usually mistake patterns a part of which is presented to each eye for those that are monocular (with only a *tabula rasa* before the other), the two eyes are of course so intimately connected that they probably act from one root and practically as one organ, and only disease or artifice can make their axes diverge or move asymmetrically up or down. Their motor seem regulated by their retinal functions, so that, according to Ludwig, if the retinæ are

extirpated, the eyes often cease to rotate, then to accommodate, then to wink together. If one eye be covered, the other pupil expands to nearly twice its former size, or else the room grows dark; if a bright image be impressed on one eye, and then it be closed and the other opened under suitable conditions, the after-image sometimes appears in normal projection. The comparative reaction-time for each eye; the physiology of reading mirror-script, or writing after the early Greek fashion, alternately right and left; which eye is most often and soonest affected in the disparate moments of drunkenness and in strabismus; whether lateral hemiopia is more common or complete on the right or left; in which direction rotation soonest produces optical dizziness; the number of fibres crossing each way in the optic chiasma;—these and many other points, including the ontogenetic and phylogenetic growth of the visual function generally from its dawn in animal life, must, we think, be much better understood before we can accept even Helmholtz's conclusion as to whether or how far it is a psychic act to join the activities of the two retinæ, or explain the hypnotic colour-blindness or accommodation-cramp of one eye, the other remaining normal, or the binocular functions generally; and even then, we are convinced, the entire problem of bilateral symmetry and function of the other double organs of the body must be brought into relation with them before such questions as these can be cleared up. Each must shed light on all, and all on each, and the study must be made comparative, to include the lower animals.

The other senses offer less data. It has, however, been stated that the left helix is apt to be less perfectly developed, lower, more prominent, further from the eye; that the left ear has less auditory power and greater liability to certain diseases; that in conflicting or contrasting sounds, the impression made on the right auditory nerve is more likely to prevail; and that one ear sometimes hears the same tone higher than the other. Even taste and smell, according to Valentin, present phenomena analogous to rivalry between their two lateral moieties when different tastes or odours are simultaneously applied to each; but there was no differentiation, no record of preference for right or left.

Of the dermal and muscular senses, there are many illustrations of the Shakespearean line, that "The hand of little employment hath the daintier sense". Weber observed that things lifted with the left hand seemed heavier, and that sensory discriminations (especially tactile, but perhaps not thermal, we should say) were finer on the left side of the body, which Wundt and others have spoken of as passive and sensory, while the right is called the active motor side. If a plate of metal, or a mustard plaster, be laid on the insensible side of an hysterical hemianæsthesic subject, sensibility is more or less completely restored in a few minutes, and often for many hours, at the point of applications,

but simultaneously reduced or lost on the corresponding point of the sound side. Analogous restorations were observed by the Burq-Charcot commission of the French Biological Society in 1878, in the field of each of the other senses, on the application of metals. The phenomena of transfer, designated by Adamkiewicz a "bilateral function," like sweat-secretion, though quite often complicated with simulation and lasting sometimes for many hours, is, in a sense, the reverse of the familiar increase of discriminative sensibility on the corresponding part of the other half of the body during psycho-physical observations.

The most familiar asymmetry in both form and function is in the hands and arms. One man in from about twenty to forty, according to various enumerations, is left-handed. Ogle found that fifty-seven men and twenty-eight women in one thousand were left-handed, and cases of true ambidexterity are very rare, as tools, machines, and many occupations and specialisations of man, unlike those of woman, often make it practically impossible. The difference is very manifest in the shoulders and chest, while the right arm is often nearly a third of an inch longer, displaces several cubic inches more of water when immersed in a tube up to a given point, as we have observed, and is sometimes one-third stronger, so that the deflections of the needle caused by muscular effort is greater on this side. The weight of the arms is so important in correcting the oscillations of the centre of gravity in walking that, if one be lost, a runner needs another of the same weight. This inequality alone brings this centre somewhat to the right. The two hands at rest are unequally open, and pronated or supinated, and an ingenious acquaintance is quite successful in inferring, at an evening party, a stranger's occupation by the way in which the hands and arms are carried and moved. Even the papillary striation, often almost as characteristic of an individual as his photograph is of his features, is different on the corresponding finger-tip of the two hands. The legs also, despite their similar action in walking, their most common act, present differences, like though less, as is seen in the unequal wear of shoes, &c. In one series of measurements, the right leg was found from one to seven-eighths of an inch the longer, and the right tibia has been found to contain more calcareous salts and less inorganic matter. The careful weighing of the muscles of the legs and of the back, excised from the body, showed the right to be in excess. Many have a decided preference for the right leg in jumping, kicking, wrestling, &c.; and it has been said that, from a square standing position, it is most natural to step off right leg first. Few sit cross-legged either way equally well, or turn out the toes equally. Few also can walk on even ground or swim straight, as the mole burrows, with their eyes closed. The power of orientation is soon lost; we wander and then take a fresh start, only to deviate again in the same direction. We are now making further studies here.

In the general conformation of the surface of the body and of its internal parts, observation and anthropometry detect quite uniform, though usually slight, differences. Few noses are straight, but one enumerator found most to turn to the right, another to the left. Few cheeks are equally full; few can protrude the tongue, gape, smile, corrugate the forehead, wink, make faces generally quite evenly, while in monomania, and even great fatigue, unequal innervation of the two sides of the face is common. The teeth have been said to develop soonest, to be strongest, sometimes larger and more numerous, and to decay latest on the right side. Hair and beard are more abundant, nails are thicker, and sometimes have a "lick," or grow strongly towards the right; and both hair and beard have been said, though with quite insufficient observation, to grow fastest on the right side. Greyness is very often asymmetrical. Asymmetry of the skull and its sutures is almost universal. In about two hundred impressions from different conformators, which we have carefully measured, we have found most symmetry in the occipital, with prominence to the left in the frontal, and still more in the temporal, regions. The right abdomen is more prominent. In right-handed people the left testicle is usually largest and most dependent; and the right in left-handed people. The right breast has been observed to have the best and richest milk, and to be preferred by infants; and the right parotid to secrete the most saliva.

The position of the internal organs is nearly medial in the human embryo till the second month, when the apex of the heart is crowded to the left by the liver. From accidents of position, temperature, pressure, &c., during this period, the viscera are sometimes, though rarely, entirely transposed. This does not, however, insure congenital left-handedness, as Hyrtl inferred, from callosities, &c., to be the case with the two subjects of his first record. Complete transposition is too rare for confident conclusions, but must tend strongly to left-handedness, as the normal position of organs must tend to dextral pre-eminence. In normal states of rest, though the blood is no purer or hotter on one side than on the other, as Aristotle asserted, it is probably conveyed more directly and with more force through the slightly larger left carotid artery. The right hand is likely to be warmest, and the right side to sweat easiest. In violent exercise in the sun, Blake found the left side about one degree hotter in axilla, but no difference in a state of rest. Mosso's volumetric measurements indicated that in hypnotic catalepsy there was slightly more blood in the left arm, while the radial pulse of the right arm is strongest in fainting, and in dying can be felt after the left stops; the latter side being the first to assume cadaveric rigidity. The right vagus nerve seems to act more strongly than the left on the heart. Though Stocker found the left thorax to be more than half an inch largest about, the right bronchus is

wider and shorter; and Petit asserted that new-born children breathe first with the upper lobe of the right lung. It has been said that of organs in pairs, those on the right side are apt to be slightly farther to the front. On the relative size of the kidneys, observations differ; but the gravid uterus more often inclines to the right, and the umbilicus is turned to the left. The average predominance in weight of the viscera of the right side is, according to Buchanan, about 15 oz., and in deep inspiration the centre of gravity is shifted slightly backward and to the right, and makes that side freer and readier for action.

Pathological, which is so closely connected with vaso-motor, asymmetry is very common, and many morbid processes are arrested at the median line. Semeiology infers, from the widening of one pupil, which of internal double organs is most diseased. Fevers and the resulting weakness are greatest on the right, which is also affected most and soonest by organic and mineral poisons, blisters, and intoxicants, so that convulsions which begin on the left side are rarely of toxic origin. In opisthotonus, the body curves to the right. Of seventy cases of pneumonia observed by one writer, sixty were on the right side; the complications due to stenosis are often unilateral. Sick headache, or hemicrania, which alternately attacks the right and left side, is severer on the latter. If there is congenital or degenerative left-sidedness, or if an ear, lung, kidney or other organ or member is defective or wanting, it is likely to be on the left side, which is also more likely to be the seat of anaemia, atrophy, cancer, and, according to one opinion, epilepsy. These may be called diseases of arrest or defect, which one writer thinks favoured by summer, while all that augments nutrition, as, for example, cold weather, favours those diseases which affect the right side most strongly, and at the same time resists sinistral maladies. On this side also extra thumbs, toes, and other organs and hypertrophies are most common.

From this general asymmetry animals are not exempt, though most observations are far less reliable. It has been stated by scientific men that double organs in the horse, dog, or other animals, are larger on the right side; that worms, in starting, writhe to the right first. Flierdl states that mollusca roll to the right by preference. It has been said that parrots prefer to stand on, and dogs to lift, the right leg. Huber observed an ant to run around about one thousand times an hour for seven days in a circle of an inch in diameter, indicating thereby incoördination of the two halves of the nerve centre. It is probable that the alleged ambidexterity of monkeys and infants is only relative. One of us observed an infant of nine months, whose hands were held symmetrically to its sides and freed at the same instant, grasp a desired object placed directly in front of it on the table fifteen times out of twenty with the right hand, often even when the object was placed somewhat to the left. Professor Brewer, who

has not yet published his figures, found, of several thousand foot-marked horses, more white feet on the left than on the right side, the left hind-foot being most often marked, and the right fore-foot least often. Common spotted, as well as calico or "pinto," horses, have most white on the left side. The same rule, we are told, seems to hold with horned cattle, dogs, hogs, and perhaps wild animals where there is no possibility of fancy-points to be bred to. Nearly all dogs carry the tail to the left. Perfect bilateral symmetry in colour is rare, though there is always a tendency to it. White hair the author regards as a sign of weakness.

In the cerebro-spinal axis, divided by deep median fissures into two corresponding halves and connected by various commissures, asymmetry is no less marked. The anterior cornu of the cord, especially in the cervical and lumbar enlargement, is somewhat larger on the right. Either side of an intact spinal cord of a decapitated frog may be well exhausted by reflex experiments, without much impairing the functions of the other side. If the stimuli increase to great strength the reflexes are diffused to more muscles on the same side before affecting those symmetrically opposite, according to Pflüger's well-known law. As men are said to make the worst face on the side of the greatest effort in severe one-sided muscular strains, if the cord be split with proper precautions in the median plane, each side may preserve the reflexes from that side apparently intact. Setschenow did not observe in this case the double-sided anæsthesia, or reflex depression of Brown-Séquard. Cross semisection of the cord reduces or destroys the power of voluntary motion below on the same side without much affecting it on the other, but increases sensation on the side of the lesion, and depresses it on the other side. Two opposite semisections need not be so near together to destroy the power of voluntary motion on both sides below as to destroy sensation. Whatever other inferences respecting the existence of inhibitory fibres, the course of fibres in the cord, conduction within the grey matter, &c., the many careful observations of this class may justify, they have at least led to the belief that very many posterior or sensory fibres cross soon after entering the cellular grey, while most fibres representing the power of voluntary motion, pass down the same side. Brown-Séquard thinks the left of the cord is more concerned with nutrition, and the right with the functions of animal life.

Of the cerebral ganglia, it has been estimated by various painstaking observers that the entire left brain weighs more than the right; that the specific gravity of the grey substance is greater on the left. Meynert thinks that the left brain has the deepest and fullest, but the right brain the most convolutions; but some have thought that the number of folds was greatest on the left only in the occipital regions, and that there was the most white matter in the right frontal and the left occipital and cerebellar brain.

So great is the asymmetry of the gyri, as well as the cerebral functions, that Exner was obliged to make out separate tables for each hemisphere in his extended study of psychophysical localisation from hospital records. A notable case of this sort was observed by Dr. Dwight in the brain of Chauncey Wright. Various kinds of asymmetry have been noted in the caudate nucleus, the olivary bodies, and especially in the fissure of Rolando, and in the arterial system of the hemispheres. It has been stated, and also denied, that the left frontal convolution develops first; it has also been said that embryonic features are more likely to persist in the right. If there is a defect of development in the right hemisphere, as is more common, or if there is lesion there, the left portion of the cerebellum, connexion with which may be traced along the lines of tract-development and secondary generation, is likely to be affected. The homologous hemispheres are connected by the commissures and decussions, the functions of which are rarely affected by disease, and which have been but little investigated, and very probably have more conductive power and less resistance than even the fibres of the projection-system. According to Meynert, the basis or pes cruris, arising chiefly from the corpus striatum and the lenticular nucleus, crosses in the medulla to the opposite lateral column of the spinal cord, and this is the way over which voluntary impulses pass from the brain to the muscles, while the fibres of the tegmentum, arising from the thalamus and corpora quadrigemina and mediating reflex movements, do not decussate. Flechsig, who derives a large part of the fibres of the basis directly from the cortex through the internal capsule, finds their decussation in the pyramid unsymmetrical, more crossing from the left brain to the right of the cord than in the opposite direction. Sometimes nearly all, and in rare cases almost none, of the pyramidal fibres decussate, great individual variation being observed. The chief transverse commissure, the corpus callosum, first makes its appearance in placental mammals, and is, according to Huxley, "the greatest and most sudden modification exhibited by the brain in the whole vertebrate series". Of its functions, little is specifically known. The few recorded cases of its congenital defect or absence have been marked by great bodily and mental weakness. Brain-diseases are usually asymmetrical, and certain of their most marked forms, hemiplegias, encephalitic processes, yellow spots, &c., &c., are most commonly seated in the left hemisphere. Deviation from bilateral symmetry in skull or brain, though in extreme cases always attended by mental defect, may be considerable without morbid symptoms. Persistent and morbid sense-illusions are often unilateral; in melancholia the two sides of the face often differ noticeably in motor innervation. Aphasia in fourteen out of fifteen cases, according to one estimate, is a disease of the left brain. In this disease the language of ideas may be lost, while the primitive, more emotional bilateral

gesture-language may persist. If the left brain be hypnotised, as it may be more or less, independently of the right, finer movements, like writing, are difficult with the right hand. Brown-Séquard and Charcot, however, have found that most cases of hemiplegia are also paraplegic; the apparently intact extremity being much weakened, the leg more than the arm. Pitres found the left extremities less weakened in right (left brain) hemiplegia than the right limb when the left side was affected. In a study of ten cases of right, and thirteen of left hemiplegia with a Duchenne dynamometer, Berger and his pupil, Friedländer, have recently verified these observations, and found a few cases in which greater energy could be developed by the affected than by the intact leg but, instead of finding the loss of power in the sound limb greater in recent cases, could not observe any inflence due to the duration of the case.

This duality has often been contrasted both with the medial position of some of the medullary centres and with the apparent unity of thought and the functional simplicity of the soul, which latter postulate, as is well known, inclined Descartes to locate it in the pineal gland. Dr. Wigan, however, did not hesitate to speak of two brains which might carry on two independent trains of thought, but which it was the object of education to make co-work, each as the sentry and security of the other. Scholars are able to think of only one thing at a time, and hard study occupies both brains, so that neither is left to work off its energy by causing dreams. We are made of two beings, he held, and, if the two brains are about balanced, vacillation is certain. In fact, one brain is nearly always superior, and controls the other. One brain may be insane, and, if the stronger one be sound, may be long controlled, and its defect concealed by an effort to hold the "self" together. The power to compel the weaker brain to the will of the stronger marks one of the greatest differences between men, and there are many colloquies between the hemispheres. Insane incoherence is like reading a few words from one book and then a few from another on entirely different subjects, with rapid alternations; a few such duplex trains of thought, Dr. Wigan believes, he has restored to sense by proper disjointing, and rejointing. Dual consciousness, reverie, castle-building, counting steps absent-mindedly, imaginary aggrandisement, supernatural suggestion, another person thinking in the brain, struggles with temptation, characters compounded of bravery and cowardice, hypocrisy and enthusiasm, chess-playing, the half identification with their *rôles* by actors, lucid intervals, the case of lunatics whose illusion is not absolute (who are John Smith or deity, who are kings but strive to conceal it, or who struggle long against morbid or criminal impulses),—these all illustrate and are explained by the duality of mind and its organ as incidents in the struggle and alternate supremacy of two rivals which should co-operate as amicably as the Siamese twins. Holland thought

that some of the phenomena of insanity—sinning against knowledge and conviction, rapidly contrasting states of mind, &c.—might be explained by disparity, incoördination or disturbed equilibrium between the hemispheres. Even Lotze and Friedrichs conjecture that one half of the brain may be conscious of psychic disease in the other, while Pick thinks it is through the functions of the sane parts of the brain that it is possible to become conscious of disturbed sanity. Hoppert and Jensen believe double thinking, or illusions of memory, when a new impression or experience brings with it a sense of familiarity, is due to the dual function rather than, as Buccola and others before him prefer to think, to a recrudescence of forgotten dreams and reveries. Flechsig thinks the hemispheres may function alternately. The morbid impulse to write mirror-script may be due to centres on the weaker side suddenly becoming the dominant ones. A normal differentiation of function, culminating perhaps in or near the island of Reil and the cortical centres above, may perhaps be assumed. Several observers now hold that the motor area is larger in the left hemisphere, which Hughlings Jackson calls the leading side. The voluntary power to speak words has been located here, and the automatic power of speaking in the corresponding centres of the right of the brain. Stricker compares the two hemispheres to two coachmen, each with a pair of lines, driving the same horses ; the right coachman is strong and trusty, but the left one is more skilful in fancy evolutions.

The human infant, in making synchronous movements with both arms, makes at first many more symmetrical than congruent movements, *i.e.*, more movements involving corresponding muscles of both arms than those in the same direction with non-corresponding muscles. These latter movements appear to be learned later, then one hand learns to act, the other remaining at rest, and finally both hands learn to act independently at the same time. An expert "will-virtuoso" is even able to write a Hebrew sentence from the Old Testament in one direction with one hand, while the other is writing a French madrigal, alternate lines backwards perhaps, and both with extreme rapidity. A thorough and psychological piano-teacher lays far less stress at first on the running scales involving congruent motions, than upon exercises which early and completely dualise the action of the two hands, both in *tempo* and in direction. These phenomena involve no such "division of the attention" as has been inferred, but one hand learns to act more automatically, and the focus of attention to alternate rapidly from right to left. Life is not, however, as has been seen, an even struggle for a monopoly of function between the two halves of dual man. Nurses carry children on their own right arm, leaving the child's right arm a freer field of motion. They hug them on the right side, disturbing the equilibrium of blood-pressure. Early in history the right hand became associated with the south, with the sun, faced in worship, with

gods and good omens, and the left with the north, demons, shadows, &c., and was left to perform all the unclean acts of life. The right is the hand of greeting, blessing, oath-taking, writing, throwing, fighting with sword or spear, &c., while the left is the naughty hand, to follow which leads to the bad, the Cinderella, held to often hard but ignoble service. Even superstition has added its weight to the influence of so many occupations, and leads to lying, sitting, seeing, &c., one-sidedly, making the average modern male body, to those who are used to seeing it unclad, as lop-sided as that of the Greek was symmetrical. There may be great selective advantage in the capacity of locating some functions mainly in the left and others in the right hemisphere, and it is not impossible that there is some mysterious advantage to self-consciousness or double-dealing with ourselves in the predominance of one side over another, *e.g.*, possibly the oft-cited asymmetry of Kant and others, or even in the fact of somatic duality; but such possibility must not blind us to the danger of ill-balanced work, so often falsely called overwork

Finally, there is a mystic side of this problem, which has attracted or repelled many, and been referred to in many ways. Why are *p* and *q* so often confounded by children and others, *p* and *b* never; or why must we so often stop and think which is left and right, but never which is up and down? Ulach has hardly given an explanation in saying that the first form of letters are halves of a horizontal, the last of a vertical symmetry, and that the latter requires a repetition of the same sensation, the former not. Again, when the function of reflex action was first established, it was argued by metaphysicians that so slight and accidental a distinction as that between anterior and posterior, could not make so profound a difference as that between the active and passive life of the soul, which was a simple spaceless entity. So, more recently, it has been said that, so far as the brain represents it, the soul must be double. To this it has been replied that an extended seat of the soul must now be admitted, that even the corpus callosum may fail without annihilating soul-life, that a monadic Ego may occur twice, and that the soul is a solidarity and not a functional or non-extended unity. Why the nervous system was so formed that a frontal, medial, and horizontal plane through it should represent functions so distinct as the sensory and motor arm of a reflex arc, the right and left "function" and the direction of gravity respectively, is a question to our mind quite without sense. Not so, however, the question, what influence upon the psychic development of animals and man is due to the power to bring two symmetrical parts of the body into contact, which a fish, *e.g.*, does not possesss. If we bring the two hands together, the one being hot and the other cold, we experience two sensations and not an intermediate temperature. So too if we could do as Socrates is said to have boasted himself able to do, *viz.*, rotate both eyes inward till, over a low nasal bridge, each could look

squarely into the other, the optical images would not fuse, while in ordinary stereoscopy we have only to exchange the impressions of the two eyes to invert the perspective. Again, how is it that, despite the independence of the two halves of the body which, *e.g.*, inclines many to make a face on the side of the muscles most strained in great effort or of the pain most keenly felt, yet the homologous points on the two hands are related, not like the identical points of the eye, or like the upper and lower note of the octave which blend into each other, but by a peculiar psychic affinity, so much closer in a sense than that between two adjacent, but just clearly distinguishable, local signs on the same side?

II.

After bringing together from original sources, and carefully considering the above facts and opinions, not all of which can be regarded as final, we are led to think that other methods than those hitherto applied might bring us into closer quarters with the comprehensive bilateral problem. Of these two were considered. 1. Operations on the corpus callosum of animals, and perhaps the pyramid, to partially isolate the action of the hemispheres, and also to reduce the action of one of them. 2. More accurate measurements of the bilateral asymmetry of function. This section is devoted to the general results of the latter method, so far as applied to the arms.

In the first series of experiments, a ruler about six feet in length was fastened on edge transversely on a table. The person whose movements are to be observed sits with carefully measured squareness before the middle of the table, and places his index fingers on each side of a pin that marks the middle of the edge of the ruler. He intends and then executes a sudden movement along the edge of the ruler to the right with the right, and to the left with the left hand simultaneously, endeavouring to make the excursions of both hands alike. His eyes must of course be closed, for they detect and correct for far slighter asymmetries of movement than the hands. The other side of the ruler is marked off each way from the central pin by millimetre scales, and a second person sitting at the other side of the table reads off and records in the protocol-book the distance of each excursion, an ink-line being drawn down the middle of the index finger-nails to aid the accuracy of the readings. Fifty or more such records can easily be made in half-an-hour, and many thousands altogether have been made and arranged. Observations were made, for control, upon many people, but were chiefly confined to two right-handed and two left-handed young men. From tables far too extensive to print here, we have formulated the following conclusions for such movements as the above.

A. I. The preferred hand makes the greater excursion. This

was generally most conspicuously the case if the movement was made mainly from the shoulder, but was usually also the law for movements made at the elbow, wrist, and knuckles. One person seemed, from these movements, right-sided at the shoulder and elbow, and left-handed at wrist and knuckles. The ratio of the excess-distance of the preferred hand to the whole excursion varied greatly with different persons, and somewhat, though much less, with the same person at different sittings. Between twenty and fifty centimetres from the central pin the asymmetry of movement was greatest, and was less for both greater or less excursions, as if the median plane and the position of fully extended arms were the bases from which intermediate positions were estimated. Weighting each hand alternately had no constant effect, but if, instead of slipping the finger-tips directly upon the ruler-edge, they rested upon and moved slides, and one of these was made to move with greater resistance than the other, the amplitude of movement was reduced. In one single series of observations, when the sitter was unusually fatigued at night, the non-preferred hand constantly made the greater excursions, and on another occasion of fatigue the same person made an extraordinary excess of movement with the preferred hand. Neither of these results, however, could be obtained again by strongly fatiguing one arm just before the sitting. In all these cases the movements were made with one sudden impulse of innervation, as nearly equal right and left as possible. If the impulses be more slowly sustained, or corrected at their close, to give fuller play to afferent impressions, unilateral excess is slightly less.

II. If these movements, instead of being simultaneous, be successive, with intervals of one and of four seconds between, there is a tendency to reduce the excess of the preferred hand, and, in some individuals, to make an equal or even greater error in favour of the non-preferred hand, *i.e.*, for a left-handed person, whose left-hand goes farthest in simultaneous movements intended to be equal, to now make the greater excursion with the right hand, and *vice versâ* for a right-handed person. The degree of right- or left-handedness seems, however, to be involved. The right and left hand preceded alternately in these observations, but our figures show as yet no constant difference, due to the precedence of either hand.

III. If, with both eyes open, the experimenter stick a pin into, or move one fixed to a slide upon the ruler to, a certain point, and then, with careful ocular measurement, attempt to place the other pin an equal distance on the other side of the middle point, there is still a pretty constant, though much smaller, excess on the side of the preferred hand. This indicates that, to binocular vision, a line at right angles to the median plane seems a little longer to the left than to the right of it, if the observer is right-handed—an error in the same sense as that of the hand in simultaneous movements. One case was found, however, in which the

exact opposite occurred, the excess being on the side of the non-preferred hand. This observation can only be made within limited angular distances. If the pins are too far apart, so that, when the eyes are fixed on one, the other is seen far in the field of indirect vision, the error is more irregular, and, so far as our limited figures cover this point, greater in the same sense as above. These observations must thus be restricted to small angular distances.

B. In a second series of observations, two rods or rulers, similar to that described above, were fastened, one in a perpendicular, the other in a horizontal position, crossing each other in the middle at the height of the shoulders. These four quadrants we numbered from the side of the recorder, the upper quadrant at his left being No. 1, and around with the hands of a watch to quadrant four at his left hand below. The person under observation assumes the primary position, with erect body and eyes closed, extending both arms horizontally and nearly straight, and laying his two index fingers together in angle of the first quadrant. The fingers being then moved simultaneously as in A. I., the left passes up along the perpendicular rod, while the right finger moves through a distance intended to be equal, outward to the right along the horizontal rod; both distances being noted from the other side as before, and the observer passing later to the other quadrants in order. Here the effect of the gravity of the arms was almost always predominant, and even in the longest series of observations, after the experimenter had learned his error, was never compensated for. Whichever arm moved up made a less, and whichever arm moved down made a greater, excursion than the arm which moved horizontally at the same time. Yet if the right arm of a right-handed person moved up and the left out horizontally, as in the second quadrant, the excess of the latter over the upward movement was less than if the left went up and the right outward, as in the first quadrant, while in the two lower quadrants the excess of the downward over the horizontal movements was greater when made by the right than when made by the left hand. If, then, as seems reasonable to infer, our knowledge of the plane surface in which this cross lay were dependent upon the muscular and innervation-sensations involved in these movements alone, an inch in this surface would seem much longer above the level of the shoulders than below them, and somewhat larger to the left of the median line than to the right, for a right-handed person:—a supposition, of course, only abstract, because, in fact, we learn to judge of all the space within reach of our hands and arms by the movements of both arms in both directions, and especially by the eyes. When the hands were alternately weighted, the relative excess of the downward, and the deficiency of the upward movements was easily increased.

Many series of successive movements, corresponding to A. II.,

and of ocular judgments of relative distances of movable pins, corresponding to A. III., were made, but not enough to warrant conclusions as yet, in the complex cases of B.

C. I. Two large thimbles were made for the two index fingers, one of which carried a light board fifteen centimetres square, to the plane of which the finger, when inserted in the thimble, was perpendicular, while the other thimble was weighted to equal the weight of the first, plus the board. Upon this latter was fastened a piece of heavy paper, with concentric circles, one centimetre apart, printed on it, the common centre being adjusted to exactly coincide with the position of a short needle on the end of the other thimble, so that if the index fingers, thus armed, were brought accurately together, the needle of one thimble would pierce the paper on the board carried by the other exactly in the middle;[1] the paper being of course removable, when the holes became too numerous to be accurately counted or located. This experiment was made with closed eyes, both arms being moved systematically from the shoulder. Besides this first movement just described, two other series of records were made, both by approximating the arms to the median plane by symmetrical shoulder-movements, in the one case directly over the head (II.), and in the other low down behind the back (III.). In each case effort was made to bring the index fingers, armed with recording apparatus, as accurately together as possible, with an impact strong enough to leave a trace, but at the same time so gently that, even if there was considerable error, the direction could not be inferred from the leverage of the recording table, for in that case it would be instinctively corrected at the subsequent movement. In observing the record thus made, it was found first that the points of the pins were by no means accurately in the centre of the concentric circles, like shots about the bull's eye of a well-used target, but about another and often rather remote centre, the position of which, best estimated by simple inspection, is comparatively constant for the same person. One extremely right-handed and one extremely left-handed person brought the preferred hand constantly farther from the axis of rotation at the shoulder in each of the three positions than the non-preferred hand, as if the preferred arm were slightly longer, and experience had not taught the proper compensation. Another strongly right-handed man brought the left finger farther front in II., farther back in III., with no discernable difference of elevation in II. The preferred hand was

[1] The apparatus here described, and that used in A. were both devised by Professor H. P. Bowditch of the Harvard Medical School, with whom these experiments were originally begun. The paper described above is the same as that used by Bowditch and Southard. See their article entitled "A Comparison of Sight and Touch," in *Journal of Physiology*, Vol. iii., No 3, Plate xvii.

uniformly highest in position I., and likely to be so in III. Though our data comprise many thousand records, they warrant no inference which hand is farthest front in II. The individual error here is constant, but bears no relation yet discernible to either right- or left-handedness, or to relative eccentricity of localisation. In another series of records (IV.), the fingers were both moved in the median plane in front, one upward, the other downward. Here the same finger was outermost as before, and there was also generally a slight tendency to overlap, but which hand, if either, tended more strongly to cross the plane into the dominion of the other, has not yet been determined. The deviations of a conjectured median plane, thus determined from an exact geometrical one, would no doubt be as great, and as hard to determine, as the difference also known to exist between the mathematical and the empirical horopter; failure to come quite round to the same vertical plane was constant in none of our subjects. If, finally, the contact was made by bringing one hand well round into the domain of the other (V.), the approximations were less accurate than if made in the median plane. These movements are a little, but only a little, more accurate in front, where the volitional action of the hand is usually guided by the eyes, than above the head and behind. If we could determine the farthest possible point in each direction, and for each position of the joints, amount of pronation, supination, &c., that could be touched with each index finger, a constant primary position of the body being of course assured, and the effects of fatigue upon the form of such a surface being eliminated; if we could then construct, within this surface, other iso-potential surfaces representing the angular translocating power of each arm straight and with different degrees of flexion; if through these surfaces we could construct lines of greatest and least flexion-power, &c.—we should have not merely a record of the mechanical properties of the framework of the arm, but superimposed upon this common element would be differences between persons and each arm of the same person, which would represent his and its entire motor-history and experience; causing endless variation in the lines of easiest, hardest, swiftest motion, position when at rest, muscle-sense and judgment, &c., and giving distinct individual habit and character to each limb, muscle and centre of motor innervation, which, even when trained, not only in skilful but in pretty equal use of the hands, we fail to know and compensate for without the use of the eye.

D. An extended series of reaction-times was measured for the four persons under observation, two of whom were right- and two left-handed, with an arrangement of apparatus similar to that described by Wundt (*Physiologische Psychologie*, Bd. II., s. 231), for which we were indebted to the kindness of Mr. C. S. Peirce, and which was used as follows. The hearing power of each ear being found to be about normal and equal, both were equally

exposed to the noise of a falling ball with warning, and five quickest reactions, by pressing the key, were made alternately with the right and with the left hand. From fifty to eighty reactions could thus be made without fatigue at one sitting, the records of which were read from the dials of the Hipp-chronoscope, and recorded and averaged. As a result of many hundred records, it was found that, for three of the four persons tested, the reaction-time on the stronger or preferred side was greater than that made by the non-preferred hand. This difference, though slight, was uniform and constant. The fourth student, right-handed, but not extremely so, made the quicker reactions, scarcely less uniformly and constantly, with the right hand. Should the rule which holds for the other three turn out to be a general one, we may have to reflect how the current view, that regards the left of the body and the right of the brain as predominantly passive, and the right side of the body and the left hemisphere as mediating more than half the motor functions, can be made to comport with Wundt's identification of apperception with the generation of the motor impulse. How, we should have to ask, upon his hypothesis, can the latter process be more rapid on the non-preferred side?

E. A dynamometer was designed, consisting of a stiff spring with two long inflexible arms, one of which carried a pencil and the other a broad metallic table for a piece of stiff paper, upon which the pencil recorded the degree of approximation of the two arms made by the hand of the experimenter. After each record the plate was slipped along a few millimetres for a new record by an assistant, who marked each line r. or l., according to the hand used. The power put forth by the hand in clenching the spring is thus represented inversely by the recorded distance between the arms. This simple instrument, though by no means free from objection, we found sufficiently accurate in a long series of comparative movements for our purposes. Our results upon the above four persons were as follows.

I. The preferred hand can always exert the more force, showing that its pre-eminence is not in skill alone. This is the case in every series, averaged from eight or ten maximal clenches alternately with the right and left hand. There is sometimes, however, a sudden excess of power in the non-preferred hand. There is also, subordinate to the general effects of fatigue, very speedily and strongly manifest here, a change in the maximal power of both hands together, now slow, now abrupt.

II. A maximal clenching movement with one hand is weakened if a like maximal movement be made at the same time with the other hand. This, which is the opposite of the result recorded by Quetelet, who found the power of each hand increased if the other was making the same effort at the same time, was uniform with the four individuals we tested. The preferred hand had more power to interfere with and weaken or

draw upon the power of the non-preferred hand than the latter had to weaken the former. If, instead of a symmetrical movement, the other hand made a maximal effort of tensing the extensor instead of the flexor muscles of the hand, or opening it as far and forcibly as possible, no constant effect on the simultaneous clenching power of the other hand was observed.

III. A submaximal standard clenching effort was made with one hand, and, after the lapse of two seconds, an attempt was made to repeat this effort by making another of the same intensity. The most constant result here obtained was that, when it was attempted to repeat the standard movement with both hands simultaneously instead of with one, the effort was too great, indicating summation in repeated sub-maximal movements; when the standard movement was repeated with but one hand it was generally underestimated.

IV. The attention, so far as controlled by fixing the eye on one hand, has power to intensify the maximal energy of the clenching effort of the hand to which it at the instant is directed, and was so potent and disturbing a factor that it had to be controlled by being directed to some intermediate object. The attention seems to have more power over the right hand than over the left hand, but, if fixed on the left, very commonly causes its maximal power to develop slightly in excess of the right.

Throughout the above observations we have been increasingly impressed with the very wide range of individual variation, and we have no data as yet for inferring a more general validity from what we have found to be the case with some or all of the four cases to which our observations have been more or less restricted. We need careful studies, both anatomical and functional, of a great number of cases; farther and more detailed research in each of the above directions, A., B., C., &c., and by other methods, before we can distinguish confidently between individual and general laws. We are, however, convinced (1) that every deviation from perfect bilateral symmetry of form or function is to be accounted for without recourse to occult causes of any sort; (2), that the key to the entire bilateral problem which shall reveal a common principle for all the various paired organs is to be sought in the study of bilateral muscle-tension and contraction, the only act of will; and (3), that the solution of this problem, when reached, now seems likely to shed light on the nature of consciousness.

THE STAGES OF HYPNOTISM.

By EDMUND GURNEY.

One of the first things which strikes the student of what is often loosely called the 'hypnotic' or 'mesmeric' state is this—that even the simplest manifestations of hypnotism are wont to present not *one* state but *two*, distinguished from one another by very marked characteristics. But the distinction, as usually drawn, has been of a very rough kind. As a rule, it has been noticed that good 'subjects' first get into a state in which many of them show great acuteness of sensibility, and in which all of them can be made to do or imagine very odd things; and that from this they gradually merge into a state of profound sleep or even coma. Such were the stages as originally observed by Braid, and subsequent investigation has done little to define them further. I am going to point out what appear to me grave deficiencies in this distinction of states, and to attempt to draw a much more precise one. But, before doing so, it is necessary to refer to another mode of distinction, which, if not cleared out of the way, might greatly confuse us. In discussions on hypnotism we continually find three *types* of condition recognised—the *cataleptic*, the *lethargic*, and the *somnambulic*: the cataleptic being the condition where the limbs will remain in any position in which they may be placed, without effort on the 'subject's' part; the lethargic being the condition where the muscles are relaxed, but abnormally liable to contractions and spasms under gentle stimulation; the somnambulic being the condition in which the 'subject' exhibits the singular eccentricities of conduct associated with public entertainments. But though these are all real and important conditions, they do not the least represent distinct *states of the individual*, or distinct *stages of hypnotism*. For the peculiarities of muscular condition may quite well *coexist* with that peculiar mental state which is described as somnambulic. The cataleptic state, moreover, does not belong to normal hypnotism at all, but is a decidedly exceptional phenomenon, and can only be considered otherwise by confusing it with the mere ordinary *rigidity* of the limbs; and again the effects of muscular irritability may be locally produced, by hypnotic processes, in various parts of the body, while the 'subject' remains in his normal waking state. On the whole, then, this mixing up of physical and mental and of constant and occasional characteristics, in a list which professes to sum up the fundamental forms of hypnotism, seems extremely misleading; and in what follows I shall speak only of cases where the *mind* of the 'subject' is to some extent affected, and shall base my distinctions primarily on the constant features which that mental affection displays.

If, then, the 'subject'—the conscious individual and not merely a part of his body—has succumbed to the hypnotic influence, if

he has passed out of his normal waking state and crossed the threshold of trance, then, before he reaches the profound sleep in which his mental condition is a mere blank, there lie before him two and only two markedly distinct states or stages, each of which however may present within itself a very large amount of variety. We may conveniently designate them as the *alert* state or stage and the *deep* state or stage. These states are, I believe, produced or producible in the case of every 'subject' who is sufficiently susceptible to hypnotism to be able finally to be put to sleep by it; but the question will very naturally occur how, if that is so, there can ever have been a doubt about it. How is it that the character, and even the very existence, of the two states has escaped general recognition? The answer is broadly this,—that, in the first place, each state admits of many degrees, and the characteristics of either of them may be only very slightly or only very transiently presented; and in the second place, unless special means are adopted, it is very easy to mistake the alert state for normal waking, and the deep state for sleep. This will become clearer when the states themselves have been further described.

To begin, then, with the *alert* state. This is the state in which a 'subject' is when, after the usual preliminary period of gazing fixedly at some object held near the eye, or of having passes made over the upper part of his person, and after the usual involuntary closure of his eyes, the strain on his eyelids is released by a few touches and words, and he is restored to what may look quite like his natural waking condition. Sometimes, it is true, the difference is very marked, and he will sit with a vacant air, irresponsive to every voice except that of the operator, and clearly not in possession of his ordinary faculties. He may be made to perform imitative actions and to obey commands in a mechanical way; but his consciousness may be at a very low ebb, or (as some have held) may have lapsed altogether. But even these cases will exhibit two characteristics of the alert stage which are also characteristics of normal waking:—the 'subject's' eyes will be open and capable of seeing; and he will (almost invariably) prove sensitive to pain if he be pinched or pricked. Very often, however, the resemblance to normal wakefulness is far closer than this; for the 'subject' will be found to converse with perfect comprehension, memory, and even humour. Where then does the essential distinction of his state lie?

The main point which can be observed at the moment is that though perfectly capable of sustaining a conversation, he does not *originate* remarks. If not spoken to he will sit quiet, and, if simply asked what he is thinking about, he will almost always answer 'Nothing'. Perhaps it may be said that even this condition of passive vacancy is after all not so very different from that in which a large number of our fellow-creatures spend a large portion of

their waking hours. If this be allowed, then we shall have to seek the essential difference of the hypnotic condition, not in any feature which it immediately presents, but wholly in two *possibilities* attaching to it, either of which demands appropriate treatment to become a reality. In the first place, if the 'subject' be left completely to himself, he will rapidly sink into the *deeper* state, and thence into hypnotic sleep, in either of which he will prove insensitive to any moderate amount of torture. Clearly the condition which leads rapidly and naturally on to further conditions of this sort is not a *normal* one: it can never be said of a person in a *normal* state, however sleepy he may be, that in two or three minutes he will be in a condition when pins may be run into him, or the severest pinches applied, without awaking him or evoking any sign of distress. The passage into these deeper conditions, it should be observed, is often so rapid that the fact of their being reached *through the alert stage* may be wholly unnoticed. The hypnotising process may carry a sensitive 'subject' in a minute or less from a condition of normal waking into hypnotic sleep; and in such a case the 'alert' period has been represented only by the few seconds before his eyes closed. If he had been taken in hand during those few seconds, and been talked to or kept employed, this passage into the deeper state would have been prevented; but if he is allowed to follow the natural course without interference, he will simply be seen to go to sleep, and he must be awakened by the operator before any phenomena can be exhibited. This liability to lapse, then, is one distinguishing characteristic of the alert state.

It is characterised, in the second place, by the possibility of obtaining, while it lasts, certain special phenomena of an active sort. The 'subject' can be made to do, and to continue doing, any action which the operator commands, although he may be perfectly conscious of making a fool of himself, and may strongly desire to resist the command. He can also be put under the influence of delusions—can have his senses deceived, so that he mistakes salt for sugar, ammonia for *eau de Cologne*; or can even be made to believe that he is in some distant place, or that his identity is changed.[1] These are the common platform-phenomena; and as the very object of hypnotising a 'subject' at all is usually to procure some of them, and the possibility of procuring them is thus practically certain to be tested, it might seem that the recognition of the abnormality of his state was in this case, at any rate, assured. But though this may be

[1] It should be remarked that even here the necessity remains of stimulating the 'subject' from time to time, to keep him going. When he is under a delusion, he will sometimes give long connected accounts, in great part often fictitious, as if he were following the course of a dream; but though very slight questions and comments will be enough to make him proceed, he will not do so if left to sustain a complete monologue.

so during the *course* of the manifestations, it is not unfrequently otherwise at their *close*; and a 'subject' who has been allowed, perhaps, to lapse into sleep, while others are being operated on, is often roused and even sent away, without its being observed that he has been roused not into a state of normal wakefulness, but only into the alert stage of hypnotism. To all appearance he is quite himself; and, the performance being over, it does not occur to anyone to try whether he is still at the mercy of commands and delusions; while the general stir and commotion prevent him from lapsing again into sleep. So he goes off home, acting and answering in a quite natural manner, till the effect wears gradually off; or, as more often happens, he continues to feel drowsy, and headachy, goes to bed, and wakes up in his usual condition next morning.

Passing now to the *deep* stage, we find that this in turn is liable to be confounded with a contiguous condition, namely, the genuine hypnotic sleep into which it tends to merge. It resembles that condition in the fact that the eyelids are closed; that, if one of them be forcibly raised, the eyeball is found to be rolled upwards; in the general insensibility to pain and to ordinary modes of stimulation. And there exists here precisely the same chance as we noted in the former case, that the particular stage will escape detection. If the 'subject' be left to himself, he will have no opportunity to manifest its characteristics, but, passing rapidly through the period during which these might be evoked, will soon lose consciousness and individuality in profound slumber. With some 'subjects,' moreover, the invasion of mental torpor is so rapid that it might be hard to fix and retain them in the genuine deep stage, even if the proper means were adopted. But many others, if taken in time, after their eyes are closed and they have become insensible to pain, but before sleep has intervened, will prove quite capable of rational conversation; they are mentally awake, even when their bodies are almost past movement, and when even a simple command is obeyed in the most languid and imperfect manner. The state is, however, harder to sustain at an even level than the alert one, owing to a stronger and more continuous tendency to lapse into a deeper condition. In the alert state the 'subject' can usually be kept going for an indefinite time: in the deep state he usually shows an increasing dislike to being questioned or meddled with.

Enough, perhaps, has been said to show how the two stages of hypnotism may be distinguished from normal waking on the one hand and from blank slumber on the other. But the marks which have been so far given as distinguishing the two stages from one another are by no means equally constant and precise. The closure of the eyes, the insensibility to pain, the disinclination, amounting sometimes almost to inability, to move, are all in a general way characteristic of the deep stage; and to them may be added a diminution of the irritability of the conjunctiva and

of the susceptibility of the pupil to light, with irresponsiveness to any voice but that of the operator.[1] But of these characteristics the only one which is invariable is the bodily torpidity. Closure of the eyes is nearly invariable; but I myself have seen two well-marked instances where the eyes remained wide open throughout the period which, as judged by all other indications, was certainly the deep stage. The irritability of the eye is sometimes only slightly affected. Insensibility to pain, though usual, is liable to still more frequent exceptions, as also is the irresponsiveness to the address of persons other than the operator. Nor are these normal features of the deep stage, even when present, entirely distinctive; as more than one of them are often also present in the alert. The irritability of the eye may at once suffer marked diminution.[2] Again not only is insensibility of a *local* sort in the alert stage one of the commonest phenomena of public exhibitions, when an arm or a leg is stiffened, and submitted to the audience to stick pins into or otherwise maltreat; but even *general* insensibility may supervene while the 'subject' is still open-eyed and capable of actively responding to suggestions and commands. This is especially the case if his attention is strongly directed in some particular channel: for instance, a 'subject' who normally is sensitive in the alert stage, if while in the deep stage he be ordered to do some particular thing when he wakes and be then roused into the alert stage, will often prove insensitive *till the thing is done*. Similarly I have known a 'subject,' who was quite sensitive before, become insensitive after, the communication of some strong impression. Being told that his sweetheart was drowned, he expressed the resolution not to survive her; and, while in this heroic mood, he bore the severest and most continuous pinching without a sign of sensation. In such cases the nervous energy is all, so to speak, concentrated into a single channel, in the performance of the task or the contemplation of the catastrophe, and there is none left to feel with—just as it has happened to soldiers in the excitement of battle to be temporarily unconscious of wounds. Insensibility to pain may also be present in the alert state, if the 'subject' is put under the influence of such a delusion

[1] How little even the most elementary distinctions between the two states have been realised by high authorities, a couple of specimens from Heidenhain may show. "The pupil of a hypnotised person contracts energetically when light falls upon the eye." It is impossible that this sweeping assertion could have been made, had Heidenhain examined eyes in any but the alert state. "Hypnotised persons never fall down." This statement, it is true, he qualifies in a note by saying that he has seen *one* person fall down. The fact, of course, is that in an enormous majority of cases (I myself have never seen an exception) the 'subject', if standing, falls down a very few seconds after closing his eyes and lapsing into the deep state.

[2] See (in addition to the observations of Braid, Tamburini and Seppelli), the case recorded by Mr. Stanley Hall in MIND XXX., p. 177.

as would naturally involve it, *e.g.*, if he is made to believe he is a statue; and I have known insensibility, which originated in this way, *continue* for some little time after the delusion was withdrawn, and another substituted—the phenomenon being the more remarkable in that the 'subject,' who had been receiving the most savage nipping with total indifference, actually shed tears at the memory of a *fictitious* nipping, which he was told had been administered to him on the previous day. Closure of the eyes, again, may be present in a state which in respect of every other symptom is the alert one: indeed, unless the spasm which brings down the eyelid during hypnotisation be relieved by some distinct local process, the eye might naturally remain closed as much during the alert stage as during the deep. Nor can we even account the bodily activity which may be evoked during the alert stage, in contrast with the torpidity of the deep one, as a really sharp or essential distinction. The activity, it will be remembered, always has to be evoked *ab extra*, and often much against the 'subject's' inclination. If left to himself, he will sit as passive in the former state as in the latter, and the one will insensibly merge into the other. The difference here, then, might seem to be one rather of degree than of kind; and the two states to be merely the less and the more advanced stage on the path to complete torpor. I may add that the advance of *mental* decline, where it can be marked, seems to be of the same graduated kind. Thus a 'subject' who, first in the alert and then in the deep state, is assured that he is going to be hanged next morning, will succumb to the idea with about equal readiness in both cases; and the only observable difference will be that in the deep state he does not seem equally to realise its gravity. A 'subject' for instance, with whom I tried this particular experiment and who was rendered decidedly grave when in the alert state, was chiefly occupied, in the deep state, with the half-jocular invention of dodges to avoid pain. But, where the whole mental condition is so abnormal, it is hard to regard such slight differences in the power of judgment as important or distinctive, or to regard them as other than steps in a single process of mental unhingeing.

The question then presents itself: Is there any distinction of *kind* between the two states—any single test by which we can make sure in which of them the 'subject' is—any sort of phenomena, capable of constant reproduction, which will draw a clear line between them, and not merely represent a gradual and continuous decline of hypnotic waking into hypnotic sleep? I believe that there *is* such a distinction; and that the phenomena needed to establish it are to be found in the domain of *memory*. And as memory will afford the means not only for distinguishing the one stage of hypnotism from the other, but also further for distinguishing the 'hypnotic state' as a whole from the normal one, I may attempt to make my rapid sketch embrace all its various conditions, so far as I have been able to observe them.

First, then, as to the 'subject's' memory, when completely awakened from the alert state, of what has taken place during that state. The degree of it varies with the number of times that he has been under the hypnotic influence.

(1) A 'subject' who is quite fresh to hypnotism has frequently some remembrance, on waking, of *all* that he has gone through. Of such actions as are usually exhibited on platforms—imitative movements, sneezing, laughing, jumping and the like—his remembrance is distinct; and he perfectly recalls not only the actions but the feelings of passive acquiescence, or of surprise, or of repugnance, with which he performed them. A not uncommon description is that he felt as if he had *two selves*, one of which was looking on at the involuntary performances of the other, without thinking it worth while to interfere. He also perfectly remembers such simple mental operations as the effort to recall his name. Of performances which have involved more complex *mental ideas*, and where his mind has been at the mercy of some concrete form of delusion, his remembrance is dimmer. But still he will give some account of parts played by him in imaginary scenes, or even when under the impression that he was some one or something other than himself. It is probable that the delusive impression in such cases has not been quite complete. For instance, a 'subject' who, when awakened to his normal state, remembered the fact of having been put to flight by a white ghost, described himself as having in a sort of way known that it was only a handkerchief which the operator was flourishing, and yet as unable to resist the ghostly terror.

(2) After a very short course of hypnotisation, these illusory changes of scene or of identity, and even the simple mental operation of trying to recall some familiar fact, are found to have left no trace on waking; but the 'subject' can still perfectly recollect the imitative and other actions which he has performed *in propriâ personâ*, and the sort of feelings which accompanied them. It will be observed how curiously fatal this fact is to Professor Heidenhain's theory that the actions of imitation, and of what he calls automatic 'obedience,' which a hypnotised person performs, are purely reflex and unconscious. For it is just of these actions that the clearest remembrance is retained; and in fact, if the 'subject' has been made to perform a few of them after being thrown into a light trance-condition, and is then brought back to the normal state, there has been absolutely no breach whatever in the continuous stream of his consciousness. He has passed through a strange experience, and that is all.

The memory of the events of the alert hypnotic state finds its precise parallel in certain cases of natural somnambulism—a condition in which all actions are of course performed *in propriâ personâ*, and without any externally-induced illusion. Somnambulism is, as a rule, a decidedly deeper state than the lighter stage of hypnotism; and memory, on waking, of what has oc-

curred in it is exceptional. I have, however, lately met with well-marked cases of it in two of my own acquaintance, who gave descriptions of their somnambulic experiences very similar to those given by hypnotic 'subjects'. Though exceptional, such cases are probably not absolutely rare; and it is the more curious that Despine, Heidenhain, and others should have so hastily and sweepingly assumed that the function of true psychic memory is suspended in hypnotism.

(3) In my experience no true memory has ever been exhibited, on complete waking, of things which have been done or suffered in the *deep* state. Nor am I aware of any record of such an event. The performance, at the appointed time, of *commands* impressed on the 'subject' when in the deep state hours or even days before, is not a case in point. For though he feels impelled to do what he has been told to do, he has no recollection of the fact of having been so told, and is at a loss to comprehend his own impulse. This is merely an instance of the well-known phenomenon of cerebral (or as it has been called 'organic') memory; but is interesting as taking place when the person is otherwise in a completely normal state.

So much, then, for the conditions of the memory on complete waking; next as to its conditions in the hypnotic states themselves.

(1) Facts of the 'subject's' general knowledge, his address, business, recent employments, and so on, are remembered even in the deep state, if that state is sufficiently marked and prolonged for some amount of conversation to be sustained in it.

(2) With a favourable 'subject,' something that has happened during one of the hypnotic states will often recur to the memory on the next occasion when that state is produced, though in the interval of normality—amounting it may be to several days and nights—which has intervened between the two occasions, it has been completely forgotten. (The thing, however, must not be an action performed *in propriâ personâ*, for this—as we have seen above—would *not be forgotten* during the *normal* state; nor connected with a delusive impression, for this—as we shall see below—would *not be remembered* on the recurrence of the *abnormal* state.) This recurrence may be made a test of the extreme rapidity with which a 'subject' will, in exceptional cases, pass from the alert hypnotic to the normal state—his attention being first arrested by a suitable incident, a few passes of the waking and 'clearing' sort obliterating all knowledge of it, and then a few more of the opposite sort bringing it back again to his mind, all within the space of a minute. But the chief interest of this *induced* phenomenon of alternating memory lies in its resemblance to what occurs in *spontaneous* conditions. Even ordinary *dreaming* occasionally presents this feature in an embryonic form—a dream-scene or dream-incident being often more apt to recur in dream than in waking moments: not that the mere recurrence could

be taken necessarily to imply memory; but experiences are recorded in which the scene or incident, though not one associated with the waking life, is distinctly *recognised* as familiar when it recurs, which of course does imply a sort of memory. *Natural somnambulism* may seem to present more distinct resemblances; and certainly, if one judged from expressions used by the somnambulist, particular ideas which have made no part of the waking life, are apt to recrudesce in the sleep-waking state. As a rule, however, it would be hard to represent this phenomenon as involving more than a mere reawakening into activity of certain nervous tracts, which naturally manifest the fact of their activity by the same external results as on previous occasions. Even in the rarer cases, which more strongly suggest the recurrence of the past events as such, the presence of true psychic memory is more doubtful than in hypnotism, or at any rate is harder to substantiate; for the very tests which might substantiate it naturally tend to wake the somnambulist, and so to put an end to the condition. Perhaps, therefore, the clearest interest of the hypnotic alternations of memory is rather as illustrating the spontaneous alternations in cases of '*double consciousness*,' where a single individual lives in turn two (or more) separate existences. There, as here, the transition may be almost instantaneous; and there, as here, while the memory of the *normal* state is continuous (its events being remembered even in the abnormal condition, just as we have seen that the events of ordinary life are remembered in either of the hypnotic states), the memory of the past events of any *abnormal* state lapses and recurs with the disappearance and reappearance of that state.

(3) If the phenomena mentioned under the last head are somewhat uncertain, it is otherwise when the condition intervening between two hypnotic states of the *same* kind is not normal wakefulness but an hypnotic state of the *other* kind—*i.e.*, when a deep state intervenes between two alert, or an alert between two deep states. I have then found that (with certain well-marked exceptions to be mentioned hereafter) the ideas impressed in the one sort of state are invariably forgotten in the other, and are as invariably again remembered when the former state recurs. Thus the 'subject,' when in the alert state, is told something—some anecdote or piece of ordinary information—which we will call A. He is then thrown, or allowed to fall, into the deep state with closed eyes, and is asked 'What were you told just now?' He is quite unaware what is meant, nor will the broadest hints recall the missing idea. He is now told something else, which we will call B; and is then re-awakened into the alert state. Being asked the same question as before, he at once repeats not B but A, and it is impossible to evoke in him any memory of B. Thrown again into the deep state, he in a similar way recalls B, and A has once more vanished. Finally he is completely awakened, informed that two things have been told him within the last five

minutes, and offered £10 to say what either of them was—with a result entirely satisfactory to the experimenter. Occasionally I have succeeded in hitting a transitional moment at which *both* things were remembered; but it was a sort of knife-edge, and the slightest manipulation or pause tending to deepen the condition brought about the customary separation and oblivion of the thing told in the alert state.

These phenomena seem singularly constant. I have obtained them with a large number of 'subjects,' and with three operators in three different parts of England, two of whom certainly had no idea what result I was expecting. They represent, of course, that clear distinction of the two hypnotic stages—as something more than mere continuous degrees of a single trance-condition—to which I have been leading up; and the great rapidity of the transition, together with the sharpness of the results, seems to make them as satisfactory indications of that distinction as could well be imagined.

(4) To the rule thus established, there are certain definite exceptions. If the idea impressed in the alert state is a *delusion*, involving either a change of *scene* or a change of *identity*, it is not remembered in the usual way. A 'subject' who has been made to believe himself elsewhere than in the room where he actually is, or to assume the part of another person or of an animal, and who while under this delusion has been carried into the deep state, on returning from that state proves almost always to be the natural self of the alert state, and refuses to believe that any idea of any sort has been impressed upon him. In the few cases within my experience where this has not happened, and where the delusory part was resumed when the alert state returned, it was noticeable that the bare *idea* seemed to revive first—very likely as the memory of the remark which had preceded and produced the illusion—and that then the illusion followed in the wake of the idea. Thus a boy who had been enacting the part of a fish on the floor, and who had been then thrown into the deep state and placed in a chair, was brought back to the alert state by gentle upward passes. He sat for some seconds staring at the floor in a puzzled way, and then flung himself down and recommenced the fish-like movements. Waking to the alert state by any *sudden* means always ensured forgetfulness, carrying the 'subject' at once over that low degree of the alert stage where recurrence of the delusion was possible. It may be added that though delusive ideas are thus forgotten, yet if the same delusion be again suggested in a general way, the *details* of the former one will be remembered. Thus a youth who had been impressed with the idea that he was a schoolboy attending Brighton College, and that his name was 'Gerald Hamilton,' completely forgot this change of identity when he returned to the alert state in which he had undergone it; but on being then again told that he was

attending Brighton College, and asked his name, he gave it as Gerald Hamilton.

(5) The next case is stranger still, though quite as definite. If in the alert state any physical effect is produced by suggestion—*e.g.*, if the 'subject' is made unable to flex his arm by being told that he cannot do so—a further very marked effect is produced on his mental powers and memory, although there is no special sign that his mind is preoccupied with attending to his bodily symptoms. A boy's arm was thus extended; he became unable to talk rationally; and being set to read aloud, he did so in a stupid and mechanical way, and could not recollect what he had read. He was now passed into the deep state, during which his arm dropped; and on being recalled from this state, was asked what he had been doing just before he went to sleep. He replied that he was holding his arm out; but both forgot and utterly denied the fact of the reading. Similarly the operations of opening a piano and picking out a tune on it, carried out by a 'subject' while under an impression that he could not unclench one of his fists, were clean forgotten after an interval of the deep state.

(6) Any sort of argument or bothering has a singular effect in causing the 'subject's' mind to drift into a deeper dream-like state. Thus, at the close of the experiment just mentioned, the 'subject' was pressed for some time as to how his arm, which he remembered to have been stiff and extended, had dropped. While he was in a state of puzzle and worry, a sudden clap and call brought him instantly to a point at which the whole circumstance as to his arm was completely forgotten; but being allowed to lapse quietly, he again recalled it. There are thus subdivisions of recollective power within the alert stage itself.

(7) We now come to an apparent exception of another sort. If the thing impressed on the 'subject's' mind in the deep state is a *command*, which he is to execute 'on waking,' he will execute it as soon as he returns to the alert state; or, if allowed to work off his trance in natural sleep, he will usually perform the act on normal waking; but, if the act has been performed in the alert state, he will have no recollection of it when brought to his normal state.[1] Such obedience is, however, no true exception to the rule that psychic memory of ideas does not extend from one state to another, any more than in the case above noticed where a 'subject' obeys a command fixed for some distant hour: he feels an impulse but does not remember its source. A singular

[1] After what has been said above, it will be readily understood that performance in the alert state of commands given in the deep, and remembrance of impressions from one alert state to another with a deep state between, are liable to be represented as performance or remembrance *on waking—i.e.*, on *complete* waking into the normal state—owing to the ease with which the alert state may be confounded with the normal.

point in connexion with this obedience is that it seems apt to fail in cases where a vivid and interesting idea is suggested at the same time as the command. Thus several 'subjects' who were told in the deep state that a fire had broken out at home, and that they must go and help to put it out, on being recalled to the alert state sat without moving, and denied any impulse to do anything. The idea probably produced a strong mental picture, which, in disappearing with the change of state according to the rule above given, involved the further disappearance of the sense of obligation.

(8) Obedience also fails in the following case. If a command has been imposed in the deep state, and the 'subject' is woke into the alert, but then, before he has time to perform it, is put under a delusion—this will *suspend* the performance of the act. Thus, a youth who had been told that he was to put on his hat and begin reading the newspaper, and had then been roused, was on the point of carrying out the command, when he was suddenly told he was a chicken. He instantly went down on the floor and began to cluck. He was then allowed to lapse into the deep state, and again brought out of it: he now at once performed the order. In this particular instance the order was not *remembered* in the second deep state, though carried out on emergence from it; the delusion had altogether obliterated it, as far as psychic memory was concerned. But this feature seems unsymmetrical, and was found not to be constant—the delusion as a rule having no effect beyond the particular sort of state in which it is induced.

Such in briefest outline is a sketch of the conditions of memory connected with hypnotism, so far as my own observation has gone. Brief as it is, it may perhaps suggest matter of reflection as to theories which assume hypnotism to be a state of mere unconscious automatism, on the ground that no true memory ever exists of what happens in it.

VI.—CRITICAL NOTICES.

The Principles of Logic. By F. H. Bradley, LL.D., Glasgow; Fellow of Merton College, Oxford. London: Kegan Paul, Trench, 1883. Pp. xvii., 534.

Mr. Bradley's work comes very opportunely. It is a characteristic feature of much of the best philosophical work of the present time that it consists in the main of revision of fundamental principles. A period of eminently constructive work lies behind us, and it is not impossible that much of the present stir may signify only the process of coming to understand what has been done. But it is true now, as at all times, that a philosophic view is only to be attained from one's own position, and that a comprehensive philosophic method can only become living and fruitful if it connects itself and is penetrated with the thoughts of the present. There is no simple tradition in philosophy and, if a method or system is accepted, the ground must lie in the fact that its leading idea has proved itself capable of expanding so as to cover the new aspects under which the perennial problems have appeared.

It is but natural that the process of scrutinising first principles and testing them by application to the great body of questions that has always formed the material of philosophy should appear, when regarded from a somewhat external point of view, like a chaos of disjointed and mutually opposing tendencies. Certainly the present state of the study of Logic has this appearance. If one takes only the representative English writings in that department, one cannot but be struck by the apparently boundless diversity of view in regard to every matter of fundamental importance. Province and method of the science, auxiliary principles with which to make the approach to logical doctrines, theory of the doctrines themselves—in no one of these points is there anything like an established view, a common basis. It is not many years since one might have said that, on the whole, putting aside the merely historical teaching of what is erroneously entitled the Aristotelian logic, English writing on the subject might have been fairly distributed under two main heads: on the one hand, a purely formal logic, basing itself, though perhaps unwittingly, on an extremely imperfect psychology, supporting itself by appeal to the high authority of Kant, and claiming to have effected, if at a cost of rejecting the most interesting questions, a purification and scientific limitation of the sphere of logical discussion; on the other hand, a general theory of knowledge, likewise involving much disputable psychology, but rightly claiming to represent more truthfully than its rival the actual process of thought as exemplified in scientific work, and so

extending its boundaries as to be able only by arbitrary refusal to reject the deeper questions inevitably raised by any discussion of the nature of knowledge. In a multiplicity of ways, complete dissolution of the one, and partial dissolution of the other of these apparently compact doctrines has been brought about, and now the state of Logic is like that of Israel under the Judges: every man doeth that which is right in his own eyes. Even when a writer is aware that fundamental difficulties lie in the way of the view upon which he is proceeding, he claims the right to act as did the prudent divine, to look the difficulty in the face and pass on. The reader is perplexed by continual references to a distinction between logical and non-logical, a very phantom on which he can lay no hold, but which in some strange fashion appears to regulate his author's proceedings and to extricate him when any formidable danger is at hand. Each *Logic* presents some new arrangement of material, some fresh classification of notions, judgments, and the like, some novel way of getting over an old familiar stile, but it is rare indeed that in any such treatment a really vigorous effort is made to show the grounds for all that is advanced and so allow the reader to form what our German friends call an objective opinion.

Affairs are no better, perhaps to some they may appear worse, among the German logicians. In that speculative domain, *Logics* swarm as bees in spring-time. Many of them, it is true, do not aspire to more than merely academic honours; they are text-books from which the reader may learn a little, and by which he may to some extent be disciplined in thinking. But, these apart, there have been supplied by German writers within the last few years quite half-a-dozen treatises of a much higher order, comprehensive, elaborate, based on principles of some sort, and each giving an altogether individual and new reading of the fundamental logical processes. He who endeavours to extract from the *Logics* of Lotze, Sigwart, Bergmann, Schuppe, even if he does not extend consideration to the somewhat earlier but yet living works of Ulrici, Trendelenburg and Ueberweg, a systematic representation of logical doctrines, has before him a task to which the labours of Hercules were simple. He will doubtless be able to discover that in some fashion all are treating of the same fact, whether it be described as thought or knowledge; more of agreement than this he will hardly find. In the mass and in detail, each treatment pursues its own way, and supports itself by a more or less explicit reference to something else, whether psychology, or metaphysics, or common sense, or philology, or anthropology, or what not. Classifications and distinctions are introduced, on grounds sufficient or insufficient but invariably diverse, and thus, in so cardinal a matter as the distribution of the forms of judgment, we are presented not only with such rearrangement of the comparatively familiar types as indicates a novel point of view, but with a variety of new forms, substantial and accidental,

descriptive and explanatory, substitutive, co-ordinative, subsumptive, &c., the number of which seems practically indefinite, and to be determined merely by the extent to which current modes of speech have been taken into consideration by the writer. The limits of the subject as a whole are equally indeterminate. Inquiries rejected by some are admitted and treated as fundamental by others; the ground of rejection or inclusion appearing really to be whether or not the writer has handled elsewhere or proposes to handle elsewhere these problems.

Chaotic as are the phenomena on which an opinion with respect to Logic has to be based, the general character of that opinion can hardly be matter of doubt. This turmoil of conflicting views is a most hopeful sign. For it indicates that we are beginning to form a logic which shall in some way represent the laws and methods of our thought, and that the stage of preparation, the attainment of some more precise conception of what is truly the function of thought, has been reached. We have, one would trust for ever, given up the conception of thought as a mere formal activity, dissevered from the body of that which makes up our knowledge, indifferent to content, and obeying only the law of one and two, of Identity and Difference. Probably no theory of thought has ever been so empty and so destructive of genuine thinking as the Formal Logic, miscalled Kantian, which endeavoured to proceed upon that basis. Really, that logic, taken strictly, must resolve its whole contents into one simple, practical maxim: 'Let thinking be consistent with itself'. Whatsoever else it contains must come from without, in the shape of psychological propositions regarding the elements of thinking or metaphysical assumptions regarding the conditions of what is thought. But, though we are perhaps able to see how futile is the purely formal logic of thought, there is sufficient evidence supplied by our current logical works that we have not yet succeeded in marking off logical discussions proper from general psychology or grammar or merely popular thinking. Even where the view is taken that Logic is a real theory of knowledge, an attempt to unfold completely the processes and laws by which knowledge is formed and systematised, there is an almost constant confusion between the psychological and the logical analysis of knowledge. Knowledge being confessedly a subjective affair, a matter of mind, it is instantly assumed that the same predicates which apply to facts of mind regarded as such are to be found and are operative as logical peculiarities. The doctrine of notions, *e.g.*, tends to become a mere receptacle for psychological discussions regarding the modes of forming ideas, their kinds, and the properties of each class—subjects no doubt of psychological interest, but not truly involved in the logical inquiry. The doctrine of judgment is confused by having imported into it a whole mass of disputable matter regarding the nature of belief, or conviction of reality, and theories of the judgment, which are

almost as numerous as treatises on Logic, turn for the most part on psychological differences. Only a vigorous effort to determine generally the fundamental characteristics of the points of view from which Logic and Psychology respectively contemplate knowledge, or a detailed criticism of the several doctrines with this general aim in view, can aid us in coming to a really fruitful decision as to the function and scope of logical science.

It is as making a large and powerful contribution towards this end that one hails Mr. Bradley's work. He does not profess to work out in systematic completeness a doctrine of logic, but, partly by polemical discussion of views, partly by presentation of results based on a more sound and penetrating analysis of the function of thought, he has not only cleared the way of much that for long has been an almost insuperable obstacle, but has also drawn attention to the real nature of logical problems and raised the discussion of them to a platform indefinitely higher than that occupied by our current logical thinking. His work is not one of which it is easy to give any brief and connected account, and the difficulties of a reviewer are somewhat aggravated by the peculiarities of the author's style and method. In a matter of this kind, no doubt, much must depend on the individual's turn of thinking, but I should fear that some part of the good effect that ought to be produced by Mr. Bradley's work will not be realised because the reader will fail to seize the leading idea of the whole. The discussion grows in complexity as it is developed, and partial views are taken up into and superseded by the more comprehensive solutions. But there is throughout implied a method of regarding the whole business of thought that is not brought with sufficient clearness to the front, and the point of many isolated treatments may in consequence be missed. Mr. Bradley has chosen his own way, and has worked towards a theory of judgment and inference, by taking up, comparing, setting against the current teaching, and carefully sifting empirically selected types of judgments and reasonings. Such a method has its advantages for teaching-purposes, but it is apt to mislead unless the underlying principles which guide the whole discussion are clearly discerned. Mr. Bradley hardly brings these forward into sufficient prominence, though he might well have done so, and it requires a long-breathed reader to accompany him through his devious course. Perhaps this one complaint may connect itself with the remark in Mr. Bradley's preface that critics of different tendencies may object that the treatment contains too much or too little metaphysics. I cannot think that Logic as a whole is in any way independent of Metaphysics, though I fully admit that, as metaphysics covers a multitude of problems, it is not necessary that into every section all the rest should be dragged, nor do I imagine that the occasional distinctions drawn by Mr. Bradley between logic and metaphysics indicate a contrary opinion. What is alone of

importance is the ultimate view of reality and thought, which is common to all such problems and binds logic and metaphysics into a unity. I do not find that Mr. Bradley makes the view on which he proceeds clear, and it appears to me that the force of many of the discussions, in particular that with which the book closes, on the validity of inference, is weakened by the want of some definite statement.

Mr. Bradley begins his inquiry with the treatment of the central problem of logical theory, the significance or import of the Judgment, and to this the whole of Book i. is devoted. Book ii. begins the discussion of Inference, and in its first part, expounds certain general types and principles of reasoning as substitute for the rejected syllogism. The second part of the Book is entirely critical and is devoted to an examination of the doctrine of Association with its natural sequels, the idea of reasoning from particulars and the Inductive methods, and to an appreciative though hostile review of Jevons's Equational Logic. Book iii. resumes the discussion of Inference, brings forward in the first part the main processes in which the essential characteristics of inference are to be detected, and endeavours to reduce these to their most general expression, and in the second part handles the ultimate problem, foreshadowed throughout all the discussion, of the relation between logical truth and real, objective connexion. The work, it will be seen, is at once comprehensive and has a certain systematic idea in it. Apart from the main inquiry, moreover, it abounds in good thinking, and no reader can fail to derive benefit from the acuteness with which isolated questions of psychological or metaphysical interest are handled. In truth, one is somewhat embarrassed with Mr. Bradley's riches, and would feel inclined at times to wish that he had pruned his work more closely. A little dissatisfaction is inevitable when a promising problem is only hinted at, even though the glance given be one of undeniable acuteness. The frequency with which Mr. Bradley is compelled to make brief excursions into psychology and what he chooses to call metaphysics, and the importance of the relative matters, lead us to desire that he had substituted for much occasional disquisition one serious and careful statement of the way in which he regards thought as subject of psychological, logical and metaphysical treatment respectively. Such a statement is called for, not only in order to illumine his own results, but also as furnishing some guiding thread to his criticism of other views.

Naturally, it is in the theory of Judgment that a logician's fundamental point of view comes to the front, and the judgment is here handled with great elaboration and much subtlety. Experience must have taught every one who has made the attempt how difficult it is to express in other language the results a thinker has come to on a question of the greatest complexity, and I can hardly hope to have succeeded in adequately apprehending all

that enters into Mr. Bradley's view of what constitutes a judgment. So far, however, as I can determine, his opinions would be somewhat as follows. Judgment is clearly a mental function, that is to say, it can only be understood as part of the complex in which thought and reality stand as opposed to, yet depending on, one another. But as a mental function, judgment is not to be taken as having the characteristics of a mental fact. However valuable may be the results of a psychological investigation of judgment as a fact in the mental life, however much light may be indirectly thrown on its logical nature by tracing the history and conditions of its appearance, the judgment as an element of knowledge, as the very mode of apprehending the real, is not simply a psychical fact, nor can the logical theory of judgment admit any determination of either idea or reality as these are treated for psychology. The constituents of the judgment, idea and reality, are equally necessary and require special definition. The idea is not the mental fact, taken as such; it is part of the general content of the real as apprehended, separated off, fixed and used as a sign or symbol. Relatively to the real, which is substantival, the idea is adjectival. It is known as not itself the real, but it has significance, meaning; and this meaning is definitely referred to the real. In any judgment the idea or ideal content is connected with, attached to, the real, and the new relation resulting is perceived not to be made by the act of judging but to be independent thereof.

This highly general description of judgment can hardly be quite intelligible until it has received filling-in from contrast with opposed views and from consideration of the new features which complex experience introduces into it. But the view deserves warm recognition as an attempt to see through the thick veils of current doctrine and to seize the very essence of the act of judging. I do not know how far Mr. Bradley's illustrations and explanations of the term *idea* will throw light upon the meaning in which it is to be employed, for there is danger, despite his precautions, that the matter will be viewed psychologically, and this danger is perhaps aggravated by the attempt to give a genetic account of the way in which we may suppose judgment to have come about in a developing intelligence. There is a correlative danger, attaching to the term *reality*, on which a word will be said later. What one would desire to insist more strongly upon, is the essential conjunction of the two factors, reality and idea, in judgment, and the impossibility of taking these apart from one another. Popular thinking and psychological considerations tend constantly towards a contrast which is fatal to any theory of thought, and the employment of the term *idea* at all emphasises the contrast in a most hurtful manner.

Provisional acceptance of the general description of judgment enables Mr. Bradley to deal summarily with certain definitions

of judgment, which err either by abstractly isolating the factors of the judgment or by accepting part for the whole. Such, *e.g.*, are all definitions of judgment as comparison of ideas, under which fall the current explanations of judging as referring to a class, as asserting identity of subject and predicate, or definitions which are merely adequate or inadequate psychological theorems. The criticisms here are to the point and felicitously expressed.

The discussion of the more abstruse questions regarding the judgment is led up to from the familiar doctrine that in a categorical judgment, existence of either subject or predicate is not asserted. 'All S is P' by no means forces the assertor to the admission that either S or P exists. S and P are merely ideal contents, and the judgment is no more than the statement that these are so connected that if the one, then the other as qualified by the first. Difficulties of this kind have recently begun to find their way into our current logical discussions, not without most hopeful results.[1] Clearly, if a solution is to come at all, and is to affect our distribution of logical judgments, it must be arrived at by a more profound consideration of the reference to reality that has appeared as a constituent of the judgment. Mr. Bradley advances to the task by contrasting in a general way the characteristics of reality and truth. The real is individual, self-existent, substantival. Truth on the other hand as having to do with the idea has no one of these characteristics. At first sight, then, it would seem that all truth is hypothetical merely, that it expresses only well or ill founded connexions of ideal contents in our minds. To come closer to the problem, there is introduced a provisional classification of categorical assertions, into (1) analytic judgments of sense, in which the given is merely described by one of its parts, (2) synthetic judgments of sense, in which the real of sense-perception, involved in the assertion, transcends what is immediately given, (3) those in which the real referred to is not a fact of perception. Scrutiny of these yields as result the important principles, that the real, even when taken in the sense of the real in perception, is not identical with its momentary appearance in perception, said momentary appearance, indeed, being an incognisable atom when taken in isolation; that the real, taken in more or less limited fashion, is ideally determined and directly referred to in the analytic judgments; that the real is indirectly referred to in synthetic judgments and is in them taken to be a continuous identity underlying the momentary phenomenal appearance. All such judgments are singular and appear to be categorical, to imply assertion of the real and of its elements as appearing in the judgment. Universal abstract judgments and hypotheticals, on the other hand, appear to assert merely necessary connexion of ideal content, and there-

[1] See, *e.g.*, Mr. Venn in *Symbolic Logic*, and Mr. A. Sidgwick's very thoughtful treatment of Abstract and Concrete Propositions in *Fallacies*.

fore point only to that in the real which is the ground of the consequence necessarily following. In the judgment, 'If S, then P,' we only assert that if the real be qualified as S, then it will present also the qualification P; we do not assert that the real is either S or P.

But to rest content with such a view is to do grave injustice to the function of thought and to take an extremely imperfect and abstract aspect of the real as the whole of its significance. In the concluding sections of his second chapter Mr. Bradley advances towards a completer doctrine of the kinds of propositions. He has little trouble in showing that synthetic judgments of sense, which transcend the given, proceed on a principle not distinguishable from that which characterises the hypothetical, while analytic judgments of sense, though professing to give the real, do so only by a process of mutilation that is concealed by ordinary language but is fatal to their claims as absolutely and simply true. The terms of which the singular analytic judgment consists are universal, are wholly inadequate to express the concrete reality that is assumed. Such judgments are in fact the poorest and most abstract, giving the least expression of reality. Like all other judgments they do refer to reality, but they refer in the least definite, most hypothetical fashion. Abstract judgments, though on one side to be described as hypothetical, for they do not assert the existence of their elements, are on another side categorical, for they do imply a quality of the real and express the nature of the real as the realm of law, of systematic connexion of facts.

The negative judgment (ch. 3), Mr. Bradley regards as resting essentially on the recognised exclusion by the real of a suggested ideal determination. It implies, therefore, in all cases a recognised ground of exclusion, a positive element, though the nature of this ground need not be the same in all cases of negation. It is with satisfaction that one sees the blank form Not-A assigned to its true place (pp. 118-9, *cf.* pp. 147-8), but the whole tenor of this chapter and occasional special statements (pp. 109, 116) tend rather strongly towards the purely subjective interpretation of judgment which is the gulf always yawning beside the logician. The disjunctive judgment (ch. 4) is shown to involve a categorical assertion regarding the disparate members of a whole predicate, a hypothetical determination of the subject in reference to these disparates, and a general assumption or inference regarding the totality of the sphere which is divided.

Chapter 5, on the Principles of Identity, Contradiction, Excluded Middle, and Double Negation, is perhaps one of the least satisfactory, not because there is much in it from which one would dissent, but because it does not seem possible to discuss with any profit these principles from the point of view which the author is taking. If we regard judging as part of the subjective process of knowing, these principles have only relative signifi-

cance. In their abstract and general form they can only be handled in what we think Mr. Bradley would call metaphysics. Not much is to be gained by treating truth in isolation, and so rendering the Law of Identity, *e.g.*, as that it merely expresses the abstractness of truth (p. 133), and, similarly, the dialectic method requires not to be compared with Contradiction and Excluded Middle when these are taken from the same point of view.

Chapters 6 and 7 on Quantity and Modality raise a multiplicity of questions. Want of space prevents my doing more than call attention to the excellent treatment of the general basis of probable reasoning which is given in ch. 7; to a general statement of the chapter I shall have occasion later to refer. The treatment of quantity raises two problems, first, that of extension and intension, second, that of the meaning to be assigned to universal and particular. In respect to both, the ordinary logic has accepted partial doctrines either from uncritical experience or from psychology, and Mr. Bradley's review, though probably not final, does good service in pointing out the unspeakable confusion that prevails regarding them. In his treatment Mr. Bradley is led to fall foul of two familiar doctrines, the one that some names are non-connotative, the other that extensions and intensions vary inversely. There is no doubt that the word 'connotation' has crept into logic without being able to yield a very satisfactory account of itself, and the modern use of it, dating doubtless from Mill's *Logic*, is entirely at variance with its earlier acceptation. From some points of view the distinction indicated by it becomes comparatively worthless, but I do not know that there is not a positive advantage in having a word which shall indicate the specific property of a sign when used to designate a class. The matter is mainly grammatical, not logical, but I do not think that it is at all necessary to identify connotation with *signification*, and so, because all signs have signification, to assert that they all have connotation. In like manner the doctrine of inverse relation between extension and intension has doubtless been applied in a wholly absurd and senseless fashion, but I imagine that in the long run the meaning of the doctrine will be found to rest on the peculiar relation between genus and species, and to result from taking abstractly a truth which would have a different expression when all the elements are taken together.

The current doctrine regarding extension and comprehension in judgments, if indeed there is any one doctrine on the subject, is sufficiently confused, and it seems hardly worth while to contrast with it in detail a new reading of these distinctions. If the definition of judgment adopted by Mr. Bradley be carried out, and the subject be taken not as the grammatical subject which appears in the verbal statement, but as the ultimate reality, then it is easily seen that, as implying ideal content, the judgment may

be read in comprehension, while, as referring to the real, it may be read in extension. The distinction is hardly worth retaining. So the current doctrine of the quantity of propositions can be shown to rest on little more than grammatical peculiarities of verbal expressions, and critics have had little trouble in collecting empirical expressions which by no ingenuity can find reasonable explanation within that doctrine. Even in recent treatises the attempt to remodel the current teaching on quantity has hardly gone further than the introduction of distinctions between law and instance, abstract universality and concrete particularity, which are far from exhausting the matter. It is interesting to note the manner in which Mr. Bradley is driven to what he has called specially metaphysical determinations in order to effect an explanation of quantitative differences. Ideal content he appears to take as in itself universal: it has no quantitative determinations in it; but such content is only one element in the judgment. The real which is the correlative factor is shown to contain in itself the mutually determining features of abstract universality and abstract particularity, and to have therefore in its individual character the aspects of the universal—the identity of differences, and of the particular—the differences of this identity. The real is thus concrete, and may appear as either concrete universal, or concrete particular, or the individual which is the truth of both. And the ideal content is at once seen to be an abstract, just as worthless as the assumed atomic, ultimate, undetermined real. This is a most important result; it affects the whole doctrine of judgment, and enables us to see that the judgment is nothing but the way in which the elements of the only reality, the thing which is known or has its notion, are held apart from one another so that their mutual implication becomes apparent. If we please we may express this in a subjective fashion, and think of the process as that in which the real is determined by some idea in us; but such a translation is dangerous, as in all probability leading to an opposition of real and ideal which can have no place in the judgment *per se*. We may ask, and the question appears at the close of Mr. Bradley's work, what signifies this fundamental form of consciousness, the reference of knowledge to reality? how comes it that in our judging and reasoning we should at once seem to be merely reproducing in ideal fashion a reality that is completely given and at the same time supplying intelligible shape and substance for a matter that is relatively abstract and undetermined? But we must be careful not to prejudge the answer by introducing into our very notion of the judgment a reference to the abstract subject. That in the mental development of the concrete spirit judgment does come about through the opposition of perceptions, representations and the like, is a fact with which Logic does not require to concern itself.

In his Second Book Mr. Bradley passes to the consideration of Reasoning. Part of the Book is occupied with a polemical review

of the theory of knowledge that has sprung from the psychological doctrine of Association of Ideas. With respect to this part I can only say here that I think Mr. Bradley most successful in his criticism, and that the chapter on Association is a valuable contribution towards a sounder psychology. The chapter on the Inductive Methods sums up from a higher point of view than has generally been taken the difficulties which most serious critics of Mill's *Logic* have felt in their regard. I am glad to find that Mr. Bradley takes a view which I have more than once expressed, that a false prominence has been attached to these methods as parts of the general doctrine of Inference supported by Mill. The chapter on Equational Logic is acute and ingenious. I imagine that the ground of Mr. Bradley's strongly expressed approval of a doctrine deviating so widely from his own is the conviction that the Equational Logic avoids at all events the numberless psychological abstractions of the ordinary and empirical logic and that it does make a vigorous effort to describe the modes in which we deal with the real in knowledge.

The Third Book continues the analysis of Reasoning and leads up to the final logical problems. I am well aware that no brief abstract can give a fair idea of the merits of the prolonged treatment of inference which is contained in these books, and that any attempt to compress the author's results simply casts into the shade the most interesting and instructive part of his work. The nature and forms of inference are handled with unwearied patience; such parts of the current logic as specially concern themselves with the foundation of the process are sifted and examined with minute and sometimes exhausting care; incidental problems receive brief and generally luminous discussion. A brief statement, moreover, must do injustice to the individuality of Mr. Bradley's method, which is such as, I think, will cause trouble to many of his readers. Mr. Bradley begins with a general view of inference which is later on altered in accordance with the distinctions arrived at in the course of the discussion. Regarding inferences as a process in which a new truth is reached from something accepted, he more formally translates these popular terms into the statement that an inference is an ideal construction resulting in the perception of a new connexion. A conclusion, as such, is not something merely given; it is reached. The accepted data are not isolated elements standing apart from the conclusion. In the process they are looked at, placed together, put in a relation to one another, ideally experimented on, and the result is a new relation perceived or the perception of a new relation. This general statement and the empirical examples which cohere with it lead to a very vehement polemic against our ancient friend the Syllogism. Mr. Bradley's grounds of quarrel are varied. He denies that schemata, general forms of valid inference, can be laid down: we can indicate only the general heads of relation within which by ideal

experiment a new relation can be reached; we can indicate only the general principle which guarantees the possibility inferring under each category. Let the category, for example, be that of synthesis in space, as when I say 'A is to the right of B, and B is to the right of C'; then there can be indicated generally what kind of conclusion can be drawn and the principle of connexion on which the ideal experiment proceeds. The actual conclusion is perceived, seen to follow, and is not drawn by any rigid syllogistic process. Again, the syllogism has insisted on a major premiss, has viewed inference as being procedure by subsumption of a less under a more general. Not only is this hard to reconcile with the notion of inference as giving a new relation; not only is it quite out of keeping with the kinds of reasoning that occur constantly in experience, *e.g.*, mathematical construction and the like; but it altogether misconceives the relation between a principle of reasoning and the reasoning itself. A principle is not a general model or axiom by reference to which we reason; reasoning is a function which embodies a principle, is its living exponent. The two are not to be severed as they are in syllogism.

Dismissing, thus, the syllogism, and I think that, as that form is commonly expressed, we should agree in doing so though perhaps with milder language, Mr. Bradley notes the main principles which underlie his types of reasoning. These are identity within the elements of the ideal experiment and universality of one premiss—different aspects of the same. This identity, as previously in the case of the so-called law of thought, is taken with a genuine metaphysical significance, but here with a possibly misleading stress laid on the subjective side. The ground of reasoning, it is said, is the assumed real identity of that which is identical in ideal content; by which one might well understand the empty identity of the syllogistic form, that the middle term shall be the *same*. But we cannot take "ideal content" in this abstract sense, or regard it as in any way conditioned by the subjective process of thinking. It is significance or meaning, the real viewed in its essential character for thought as the union of universal and particular. The notion of correspondence between ideal content and reality is ambiguous and can only lead to a quite contradictory result. On this ground I am altogether disinclined to accept, in lieu of the syllogism, as necessarily arising out of judgment, the subjective processes of construction and the like on which Mr. Bradley expands himself. Nor do I follow him in his criticism of the syllogistic form as fallaciously attempting to draw a conclusion which must be left to the private judgment of the individual thinker. No doubt, the ordinary mode of expressing the syllogism—through concrete instances—is deeply in fault; no doubt, also, the class-idea on which the syllogism is made to turn is a veritable abstraction which cannot be regarded as the life of reasoning. But the concrete inferences, which are supposed to show the incompetence of syllogistic form

and to be products of ideal experimentations, do in themselves involve the fundamental categories of universal, particular and individual of whose connexion the syllogism is but the form. That from these categories taken *in abstracto* inferences in concrete matter can be drawn is of course false, but it does not seem at all needful, in order to rescue the syllogism from oblivion, to insist that concrete thinking involves nothing more than these abstract categories. To reject the syllogism and to lay all stress upon these processes—construction, comparison, abstraction and the like—is to tend towards a purely subjective reading of thought, and to interpret the real as a kind of unknowable, foreign to thought, and only assumed, on grounds good or bad, to conform in some way to it.

With much care and elaboration Mr. Bradley in his Third Book works out the forms in which as it seems to him inference really proceeds, finally bringing them under the two rubrics Analysis and Synthesis, with indication of a third process (perhaps System) at the root of which lies the ultimate idea of the real as concrete individuality, unfolding itself in its peculiar forms into all the richness of existence. Such third process, which perhaps connects itself with the class of judgments not expressly handled, those in which the subject is non-phenomenal reality, is but hinted at, and the problem raised by it is treated in the concluding chapters from a narrower point of view. Briefly, the question there raised is that of the validity of inference —a many-sided question, the mere formulation of which in its true terms is philosophy at large. Mr. Bradley approaches it from various sides, discussing the relation of ground of knowledge to ground of existence, of formal validity to real truth, and finally of knowing as a whole to fact known. The difficulty, which no one will be more ready to acknowledge than Mr. Bradley himself, of coming to a perfect understanding with regard to the significance of the terms employed in so abstruse a discussion, and the dependence of any meaning on a more or less developed philosophic view, render it impossible to do more than remark on one or two of the aspect of the treatment here given. Mr. Bradley refers in his discussion to Lotze, and most readers of the *Logik* will remember the stringent criticism to which the claims of logical forms to real validity are subjected. But, at the same time, it ought not to be forgotten that such criticism rested on a metaphysical basis, on a theory of the soul and of psychical life, which rendered it absolutely necessary to regard logical forms as being mere products of the psychological mechanism *under certain presuppositions*. The whole difficulty which rises out of the very term 'truth' was simply cast back into the undetermined field of assumptions; for by these assumptions only can 'reality' have a significance for us. To follow in this track is to play with the term 'reality' and to be driven in the long run to the *caput mortuum* of the 'thing-in-itself'. I

do not imagine that Mr. Bradley takes this track,—there is much in his book that so would be incomprehensible; but he undoubtedly speaks as if the nature of thought were such as to render reality altogether foreign to it, and sometimes treats phenomenal reality, momentary appearance, as if it had supreme worth and supplied a touchstone for the validity of reasoning. Knowledge is subjective, unquestionably, and it is not reality, simply because it is knowledge; but it is not on that account to be regarded either as a complex, accidental growth in the individual spirit, nor as doomed for ever to face its own insoluble problem. If we seriously treat knowledge as one of the modes of thought in and for which reality has any significance, we may come to see why there is continuously present therein the opposition of knowing and being, which, hastily interpreted and mixed with foreign considerations, might lead to an abstract severance of the two. Possibly, also, those minor queries, such as that relating to the cause and the reason in knowledge, would yield to an investigation of the true significance of the relative categories employed.

I am in doubt to what extent these remarks do injustice to Mr. Bradley's point of view, but the definition he has given of judgment, his interpretation of the modal categories, his development of the forms of inference, his frequent excursions into the psychology of knowledge, and his final discussion of reality, seem to me to imply a view hardly in keeping with the general tenor of the book, and possibly, if worked out, destructive to much that appears there. However that may be, there is this to be said, that from few books of recent philosophy is there more to be learned than from the present work. No reader can fail to learn much or to be stimulated in the best way by the abundant criticism that is bestowed upon logical and psychological doctrines; there is none who cannot benefit by the remarkable patience, circumspection and acuteness with which the author handles each logical question. That a work should be calculated to raise the whole standard of discussion in its subject is perhaps the highest praise that can be given; in my judgment such praise can be unreservedly accorded to Mr. Bradley's treatment of the Principles of Logic.

R. ADAMSON.

Body and Will: Being an Essay concerning Will in its Metaphysical, Physiological and Pathological Aspects. By HENRY MAUDSLEY, M.D. London: Kegan Paul, Trench, 1883. Pp. 333.

The main drift of *Body and Will* is decidedly polemical. Dr. Maudsley declares war against "metaphysicians" and all their works. The word Metaphysics is nowhere in the book formally defined, and one is disposed at times to regard it as a synonym

for whatever the author happens to dislike. One or two important points, however, are clear. Metaphysicians, it seems, deny, and non-metaphysicians assert, that mind is a function of specially organised matter. The metaphysician proceeds by pure introspection, the non-metaphysician by the positive method of observation and induction. The metaphysical stronghold is the freedom of a spiritual will; if once this airy citadel be carried, the champions of "high mental philosophy" will be able to hold out no more. To this fortress Dr. Maudsley lays siege with all his powers. The attack is conducted from three separate quarters, represented by the three parts into which his work is divided. Part i., treating of "Will in its Metaphysical Aspect," discusses the difficulties involved in the theory of free-will, and the value of the arguments adduced in support of it. Part ii., treating of "Will in its Physiological, Social and Evolutional Relations," strives to expound and enforce the author's own view. Part iii., treating of "Will in its Pathological Relations," shows that we cannot choose but descend from the barren heights of speculation, when we have to deal with "mind in its concrete human embodiments".

The practical considerations presented to the reader in Part iii. seem to have had most influence on the author's own mind. In discussing the "metaphysical aspect," he is compelled, according to his own confession, to employ methods in which he has no "proper faith," and language to which he attaches no "clear and definite ideas". As a natural consequence, he is perpetually playing at cross purposes with his opponents. Indeed the whole discussion would seem to arise from a misunderstanding. It is a gratuitous assumption to suppose that the man of science *quâ* man of science has any ground of quarrel with the philosopher *quâ* philosopher. Only by becoming a metaphysician himself can the practical observer enter the lists against metaphysicians. And this seems to be precisely what Dr. Maudsley has done, without being very distinctly aware of it. With physiological facts which have been, or may be, inductively established he mixes up, as if they rested on the same kind of evidence, the most purely speculative theories. It will scarcely be denied that determinism is such a theory, no less than the doctrine of free-will. We cannot prove by the method of induction that all events are entirely determined, simply because we beg the question in assuming this method to be applicable to all events in all their aspects. This fallacy seems to vitiate Dr. Maudsley's argument in chapter 1, which may be stated thus in syllogistic form:— True doctrine is the explicit declaration of what is implicit in the constitution and experience of mankind; Within human experience causation is universal; ∴ The doctrine of universal causation is true. Here, according to the libertarian, the major premiss holds good without limitation, whereas the minor, though true of intellectual, is untrue of moral experience.

Of course, if it were possible to show that human volitions are capable of complete explanation and certain prediction, such a distinction would be no longer tenable. But has Dr. Maudsley shown this? Appeal is made by him to the admitted fact that statesmen, lawgivers, men of the world, &c., can frame general maxims concerning the conduct of mankind under given circumstances. But surely this falls short of what the case requires. Proof is needed, not merely of regularity in the average and probability in the particular instance, but of universality in the general law and absolute certainty in the special case. No such proof is forthcoming

It seems then that the testimony of practical human life does not make in Dr. Maudsley's favour so unequivocally as he is ready to suppose. The witness next examined is consciousness. We are warned at the outset, that we must not in this matter accept the hearsay report of metaphysicians. According to this report, consciousness tells us (1) that we have a will, (2) that it is free. Dr. Maudsley maintains that on both these points its evidence has been falsified.

He argues that consciousness tells us nothing of a will, on the ground that it tells us nothing of "an abstract will-entity". The entity referred to turns out to be identical with the immaterial Ego which wills. Metaphysicians try to show that such an Ego is implied in the unity of self-consciousness. This argument Dr. Maudsley first mis-states, and then demolishes. According to him the "claim put forward" is, that there must be "some bond of unity between particular volitions". Now metaphysicians generally maintain that in every single instance of conscious choice there is implied an active self which, recognising causes as reasons, weighs and compares them with each other. Dr. Maudsley proposes that we should substitute the material organism instead of this immaterial self. The metaphysician replies that the unity of consciousness is not of the same kind with the unity belonging to a complex whole made up of interacting parts. "But why not?" says Dr. Maudsley, and indeed he does not seem able to catch even a glimmering of the "why not". The reason which he puts into the mouth of his imaginary opponent is, that a unity perceived from within cannot be identical with a unity perceived from without. But this is a very inadequate statement of the case. For, though we infer that the Ego is a unity because it internally apprehends itself as such, the unity which it apprehends is not identical with the unity which we infer. The former is constituted by relations among perceptions, the latter is implied in the perception of relations. This view of the question has found much favour of late: yet it is entirely neglected by Dr. Maudsley. Again, admitting that mental and bodily unity exactly correspond, why should the *prius* be assigned to the latter instead of to the former? What if the mind be the thing-in-itself, and the brain only phenomenal of it?

On the whole Dr. Maudsley's polemic against the spiritual self cannot be considered adequate or conclusive. His examination of the testimony of consciousness concerning freedom is hardly more satisfactory. The point mainly insisted on is the incompetence of introspection to take cognisance of anything beyond the mental state of the moment. Now (1) this cannot be quite true, else no man could have any knowledge of his past history; (2) it makes no difference whether it be true or false, since every result is entirely determined by its proximate antecedents, which are continued into it in such wise that we cannot fix a point at which they cease and it begins; (3) though we cannot be separately conscious of each of the determining causes, yet we may become aware of the intervention of some new factor differing from any of them.

Chapter 3 considers the relative value of our knowledge of mental states through self-consciousness, as compared with "our knowledge of external objects through the senses." It is pointed out that in both cases we have immediately given a state of consciousness, and immediately infer, in the one case, external conditions of sensations, in the other a something which feels a sensation. "This something," we are told, "is far more difficult to know in itself than the external object, being no more than it within the compass of introspective intuition, and unlike it, not being within the compass of objective observation. It appears, then, that because the mental self is not given in introspection, but inferred, it does not come within the compass of introspection, whereas the "external object," though it is admittedly not given in objective observation, but only inferred, nevertheless comes within the compass of objective observation. This may serve as a slight sample of the indulgence which Dr. Maudsley lavishes upon his favourites. He evidently here identifies the "external object" with the physical conditions of sensation, and figures these as immediately present to the consciousness of an onlooker.

From this point of view it seems perfectly self-evident that consciousness is not the "function of a particular bodily structure" objectively observed. If it were, each man's conscious experience would be a "function" of a small portion of the conscious experience of other men. Accordingly, in order to give plausibility to his thesis, that mental experience is really bodily experience, our author unconsciously changes the meaning of the words, body, object, organism, &c. We are now informed that the same thing becomes objective or subjective, according to the special channel through which it is presented.

"It certainly is impossible to think the transformation of that which we perceive objectively as movement into that which we are conscious of subjectively as thought; to say so is equivalent to saying that light cannot be heard or sound seen."

Again (p. 100) "the same object—the functioning brain—must necessarily produce a very different impression upon the internal sense of consciousness from that which it produces on the sense of an observer."

It is but fair to ask who or what possesses this internal sense. It cannot be brain; for this is assumed to be, not the percipient, but the thing which produces the perceived impression. We seem compelled to postulate something very like what is commonly called a soul. Yet anything but this is the conclusion towards which Dr. Maudsley wished to lead us.

The latter half of this chapter treats of our belief in an external world. One of the arguments urged involves the curious assumption that, if all reality consists in consciousness, the reality of each of us must be, not in our own consciousness, but in that of our neighbours. But the point mainly insisted on as proving that we have as good testimony to the external world as we have to our own existence, is the "necessary synthesis of Ego and Non-ego." Now it is of course obvious that, if "Ego" and "Non-ego" mutually imply each other, and if the "Non-ego" is identical with the "external world," we cannot logically admit the existence of an "Ego" and yet deny the existence of an "external world". But it is equally obvious that the nature of the "external world" proved depends on the nature of the "Non-ego" with which it is identified. Unfortunately "Non-ego" is one of those words to which Dr. Maudsley attaches "no clear and definite ideas". Sometimes it is used by him as synonymous with "motor" as distinguished from "passive" consciousness, sometimes as equivalent to the so-called physical conditions of sensation. Whichever of these two meanings we adopt, it is evident that the "external world" proved will be one which no man ever dreamed of denying.

Before quitting the purely metaphysical division of the book, we must notice the author's own positive speculations. His fundamental principle is that mind is a function of the organism. When molecular movement becomes sufficiently complicated, thought is the result. If we inquire how movement, merely by becoming complex, gives rise to something which is not movement, a hint is thrown out that the analogy of chemical processes may solve our difficulty. Now this seems to be a suicidal argument. It is of course true that, for the chemist, there are properties in the compound, which cannot be accounted for as the resultant of the properties of the components. But these properties invariably depend on the peculiar quality of the effects produced by the compound on other things, and especially on our senses. Now what is this other thing, in which brain-movements, of sufficient complexity, set up such peculiar affections? We are again thrown back on the old-fashioned hypothesis of an immaterial principle.

The chief positive argument urged in favour of materialism is drawn from the existence of sub-conscious or unconscious mental processes. It seems to be assumed that these cannot be explained on purely psychological grounds. If a mental state is not "illuminated by consciousness," it must be an "insensible condition of body." Yet it is admitted that such states may be subjectively discovered.

"Introspection itself, had it been thorough and faithful, might have opened this field of inquiry, but here again the all-sufficient abstract Ego stood like a forbidding angel in the way of patient and plodding inquiry."

Surely Dr. Maudsley is aware that introspection did open this field of inquiry, and that, so far from being the peculiar property of the physiologist, sub-conscious processes were first brought into notice by Leibniz, the purest of pure idealists, and have been most fruitfully studied by Herbart and Lotze, both strenuous upholders of the spiritual-substance theory. In fact it is not too much to say that bodily processes, as such, cannot possibly be sub-conscious: they are definite presentations to the consciousness of an external observer. This is just what is meant when it is said that they can be known objectively by observation and induction.

We have now followed out, in some detail, Dr. Maudsley's plea for materialism. We do not think he has made out his case. It must, however, be admitted that he has done his best for his client, omitting no important point, and marshalling his arguments in an able and impressive manner. Nevertheless most readers will turn with a sense of relief to the purely scientific part of the book. Dr. Maudsley makes most extensive use of the principle of evolution, but is quite aware that it is not an universal solvent. Good service is done in pointing out what it can and what it cannot accomplish in the way of explanation. Protest is with great justice entered against the tendency to substitute mouth-filling words for real knowledge, and vague generality for patient investigation of particular processes. Marked prominence is given to degeneration as an inseparable accompaniment of evolution. The author avails himself freely of the abundant store of illustration supplied by his special studies. Yet among these practical details Dr. Maudsley never once loses sight of the great end which his book is intended to fulfil. The phenomena of disease, insanity, idiocy are discussed, not for their own sake, but only to show that mind is purely the outcome of material processes. Even in the eloquent eschatological section with which the work closes, he cannot help making side-hits at his philosophical opponents. Among the signs of degeneration, "the solemn tolls of destiny" are enumerated—"metaphysical disquisitions concerning the reality of an external world," "scepticism as to the very foundations of knowledge," "elaborate introspective self-analyses." Let us hope that no weightier indications than these foretoken the coming doom. Truly it is an "awful contemplation, that of the human race bereft of its evolutional energy, disillusioned, without enthusiasm, without hope, without aspiration, without an ideal." Yet, according to Dr. Maudsley, this consummation is inevitably "forefixed," "foretokened," and "foredoomed." Our salvation is in the sun, and the sun must one day fail us. The last and highest products of evolution will be the first to decay, then "in deepening succession the low,

lower, and lowest organisations." The disintegration of the social organisation will be accelerated by the "poisonous products of its own putrefaction." The aspirations which have done so much to nerve and cheer mankind, are "perchance" due to a "cosmic instinct of the matter of which we are constituted," and have no reference to the future of ephemeral human insects. We are fated to dwindle and decay, until all that is left of us be "a few scattered families of degraded human beings, living in snow-huts near the equator." Verily, of all follies, prophecy is the most gratuitous.

G. F. STOUT.

Les Maladies de la Volonté. Par TH. RIBOT. Paris: Germer Baillière, 1883. Pp. 177.

M. Ribot here follows up his interesting study of the Diseases of Memory (see MIND XXIV., p. 590). Both works are characterised by sound psychological knowledge, and by a wide acquaintance with pathological literature. Both illustrate the value to the psychologist of studying those disturbances of complex psychical processes which are brought about by disease. For if, on the one hand, the pathologist needs some knowledge of psychological principles in order to give an intelligible account of the phenomena which he studies, on the other hand, the psychologist gains a much more exact and certain knowledge of the co-operant factors in psychical processes by noting the displacements effected by disease. In point of fact such morbid conditions may supply him with just those 'negative instances' which he often needs so badly in psychological investigation.

What we call our willing or our sum of volitions is (says M. Ribot) a highly complex product, involving lower and higher impulses, and a certain relation of subordination (or control) among these, or, as M. Ribot expresses it, a "hierarchical co-ordination". It depends on a delicate balancing of forces which can be easily upset. These active tendencies may be arranged according to the order of the intellectual states which immediately precede them. All movement is of the reflex type, says M. Ribot, and every idea has a tendency to pass into movement, which tendency varies according to the intensity of the emotive accompaniment of the idea. Thus abstract ideas, though having this tendency, have it in the weakest degree. The co-operant impulses making up our volitions have two great sources. Of these the first is what M. Ribot calls character, and which might also be termed active or moral idiosyncracy. This is "the principal element, the effect of internal causes, which is not an entity, but the resultant of that myriad of states and of tendencies, infinitely small, of all the anatomical elements which constitute a particular organism". It is "the psychological expression of a certain organised body". The other

source of the active tendencies is external circumstances, the environment, education, in the widest sense of this term. It follows at once from this view that there is no room for undetermined or unmotived action. Considered as a state of consciousness, choice is for our author simply a kind of affirmation or negation, which in itself has no more efficacy than a judgment which it resembles. The real motor is the sum of organised tendencies acting in a certain way. Indeed to one who, like M. Ribot, looks at a voluntary action as a phenomenon in time conjoined with organic processes, there is plainly no meaning in the expression 'undetermined action'. Such a view is necessary to one who is going to study the pathology of volition; and in its turn is abundantly illustrated by the results of such study.

M. Ribot begins by distinguishing between two great groups of pathological conditions. The will may be either uprooted or destroyed. The study of the first group precedes that of the second. Here, again, we can distinguish two main kinds of enfeeblement: (1) by defect of impulse; (2) by excess of impulse. The former variety is illustrated by the case of De Quincey, as well as by other cases distinctly recognised as instances of disease. There is still the form of volition, the 'I will,' but no corresponding impulsive force to give effect to the mandate. The patient affected by this debility often shows a clear consciousness of it, and an anxiety to carry out a resolve lest the executive power fail him. In these cases the intelligence and the muscular power are intact, and the incapability to act is distinctly due to absence of active impulse. As M. Ribot observes, disease here "creates exceptional conditions, unrealisable by any other means; it splits up the man, annihilates the individual reaction, respects the rest; it produces for us, as far as this is possible, a being reduced to pure intelligence". There is but one explanation of this state of things, namely a diminution of the process of excitation in the motor centres which is correlated with an enfeeblement of the sensitive or emotive element. As one of Esquirol's patients put it: "This want of activity was due to the fact that my sensations were too feeble to exercise an influence on my will". Here then we have the cause of the impotence in the suppression of the impulsive organic factor. M. Ribot considers that the patients who profess to feel an intensity of desire in this condition, are the subjects of an illusion. It is exactly this emotive or active element of desire which fails them.

Besides these cases in which there is a complete extinction of impulse, there are others in which there is a measure of active tendency preserved, but this is more than counterbalanced by the abnormal quantity of inhibitory force. Such are the instances in which a morbid timidity or anxiety at once arrests active impulse. A curious variety of this species of disturbance is fear of open spaces *(Platzangst)*. In this condition the patient is

terrified at the sight of an open space of any extent, as one of the larger 'places' of Berlin. Another curious variety of this disorder is the 'doubting mania' *(Grübelsucht)*. The patient cannot resolve to act because he imagines a heap of improbable and often absurd contingencies. This state of nascent and instantaneously inhibited impulse is characterised by an exceptional degree of the phenomenon known as the consciousness of effort, about the real nature of which the author makes some suggestive remarks.

The next chapter deals with the second class of volitional disorders, those arising by excess of impulse. Here again are two subdivisions; for the carrying out of the impulse may (1) be instantaneous and automatic, apart from consciousness, or (2) occupy some time, involving a full measure of consciousness, and a conflict more or less prolonged. The first class of cases is typified by the instantaneous following out of an impulse to say something disagreeable or obscene, sometimes observable in hysterical patients. Here the higher centres of the brain are disabled, and so their inhibitory action on the lower centres disappears. Such impulsive actions answer to the energetic reflexes of a decapitated animal. In the second class of cases the patient is aware of the sudden access of a powerful impulse, *e.g.*, to a homicidal act, and feels his inability to resist the torrent, sometimes asking aid of others. M. Ribot discusses the question whether this last variety of disturbance of the normal ratio between impulse and rational motive, the lower reflex and the controlling activity of the higher centres, is due to the weakening of the latter or to the strengthening of the former, and is inclined to think that in different circumstances sometimes the one and sometimes the other is the cause.

In a special chapter the author deals with enfeeblements, congenital and acquired, of voluntary attention. Here we have the counterparts of disturbances of voluntary action, which fact by the way serves in an interesting manner to illustrate the close parallelism between voluntarily attending to a thing, and voluntarily doing a thing. Thus in some cases there is an exaggerated intellectual activity, a superabundant flow of images so that the power of intellectual control is baffled. In others, again, there is a want of the energy implied in the act of concentration. M. Ribot argues that voluntary attention is nothing but "an artificial, unstable, and precarious imitation of spontaneous attention". The real force in attention is feeling, and when this fails attention flags. Here then, too, we find that the voluntary is based on and rooted in the involuntary.

The next chapter is headed "The Reign of Caprices". It deals with that condition of instability or constant fluctuation of desire and purpose, which presents itself most distinctly in the case of hysterical patients. Here the conditions of volition, of choice, are almost entirely wanting. There is no combining,

no co-ordinating: the active mind is reduced to a chaos of disconnected impulses and desires. The physiological ground of these disorders is probably a disturbance of the organic functions, of general sensibility, mobility, &c.

The review of the phenomena of volitional disease is completed by a reference to that condition of perfect annihilation of will and of action as a whole, which shows itself in ecstacy and in somnambulism. In these conditions we see the tendency of contemplation or of deep reflection to inhibit action, which is observable in normal life, fully realised. This state of mind, so well described by one of its subjects, Saint Theresa, involves a suppression of feeling and of active impulse. Pure ideation, commonly of a very abstract character, sums up the psychical condition. The absence of all motor impulse in the case accords with the fact, noted above, that as ideas become general or abstract their tendency to initiate movement lessens. With a brief reference to the phenomena of somnambulism the author brings his interesting study to a close.

JAMES SULLY.

Abriss der Sprachwissenschaft. Von Prof. Dr. H. STEINTHAL. Erster Teil. Erste und Zweite Abteilungen. Berlin: Dümmler, 1881. Pp. xxv, 496.

One cannot but wonder at the apathy displayed by the English school of psychology toward the remarkable contributions of the Herbartians, and more especially of Lazarus and Steinthal, to comparative psychology and the science of language. The author of the present work is one of the most vigorous of German writers. Prof. Pott has somewhere said of him that he delights in putting the edge of a razor on his sentences, and none can doubt that he is rich in trenchant, pithy phrases. By most philologists in this country, and even in America, he is looked upon as a "mystic," and the general impression seems to be that, whatever his worth as a psychologist, in the realm of language his researches are of singularly little value. This opinion has arisen solely from an inadequate appreciation of the nature of the issues involved in the study of human speech.

In this *Outline of the Science of Language* we miss the 'dithyrambi' of the earlier works, which used to leave the impression that the author must everywhere have the consciousness that everything was begun, nothing completed. Throwing his powers into the stream of the evolution of universal mind, Steinthal has created a new organ of psychological analysis, the value and scope of which will be differently estimated according to one's personal equation. Those who think that language is too gross a medium for a clear and exact analysis of psychical processes, may well be content with the abstract formulæ which are here

turned to such good account. At the same time it is interesting to note that Steinthal's coadjutor, Prof. Lazarus, neither uses mathematical formulæ nor those of chemistry, that, in fact, though he admits the possibility, he altogether denies the necessity of applying mathematics to psychology.

At the outset we must notice Steinthal's definition of philology. In the philosophico-philological treatise *De Pronomine Relativo*, which was written in 1847, he had said: "Itaque una viri doctissimi atque clarissimi Böckhii definitio mihi videtur recta: *philologiam esse cogniti cognitionem*". Since then he has been led to modify his acceptance of the formula "Erkenntniss des Erkannten," because it fails to adequately mark off philology either on the side of philosophy or on that of natural science. Nor does it accurately define philology in itself. Setting aside the false antitheses in Böckh's *Encyklopädie und Methodologie der Philologie*, Science, he says, is—

I. Formal and *a priori*, ... Philosophy:
  (1) How am I to think? , ... Logic and Metaphysics.
  (2) How am I to act? . . . . . Ethics.
  (3) How am I to create artistically? . Æsthetics.

II. Material; the object is:
  (1) Nature, ... Natural Science and Mathematics.
  (2) Mind, ... History (or Philology) and Psychology.

From this it is plain that philology is defined as history. Kant defines as different but related concepts, polyhistory, polymathy, pansophia, philology, *humaniora*, and the *belles-lettres*. But we must not suppose that he meant to designate real sciences by these names. Steinthal makes the distinction between the philological and scientific view of language partly from abstract or logical considerations, and partly because it accords with the division of labour among linguistic students. Logic teaches us that every concept has a content and a scope. The definition of a concept has only to give the content and not the scope. Not that the scope of a concept is immaterial, only it must be the outcome of the content. Now, is this definition of philology as history one containing a scientific content from which its scope may be deduced? We venture to think it is, though it is not likely to find favour with English students, who have been accustomed to look upon philology either as a systematic study of the classical authors or as identical with the science of language. "To the eye of the student of language what have Turkish, Persian and Arabic in common? Nothing. But those three literatures are comprehended by Muhammadan philology. And in Buddhistic philology quite heterogeneous elements are united. In a word, history unites what nature may have separated."

Mental life goes back further than historical, although to have

historical development is an essential characteristic of the mental. There are tribes and times and relations which remain outside of the historical movement. Philology only embraces historical life. What lies beyond is the province of the Science of Language. Now, where language oversteps the bounds of philology, it enters the province of psychological ethnology. There is undoubtedly a mental life which is not historical. Tribes without culture and history have language and religion, and the life they lead is one ordered by mental considerations, as marriage, work, law, authority, &c. They are therefore neither mere objects of natural science nor objects of philology; hence, by the side of history we have ethnological psychology. And as the investigation of external nature has its rational basis in mathematics, physics, chemistry, and physiology, so history (philology) and ethnology find the means for understanding the causal, regular relations of mental facts in psychology.

As regards the relation of grammar to logic, it has been supposed, from Plato to the present time, that language is identical with intelligence, *i.e.*, that speech-sounds are nothing more than the products of intellectuality itself, intuitions, concepts, thoughts. The investigation of the grammatical categories, begun by Plato, was continued by Aristotle and brought so far to an end by the Stoics that they at least found out all the categories. But not only were these used by the Greek philosophers in the service and to the advantage of dialectic and logic; they were in fact to them dialectical or logical essences. Nor did the Schoolmen or even the men of Port-Royal get beyond this; accordingly the grammatical forms of language were looked upon as the embodiment of the general forms of logical thought and of general intuition. To such length has this doctrine of the unity of thought and speech been carried that, as might have been expected, K. F. Becker's view of the human *logos* giving itself a sensuous reality in language, just as the idea of life realises itself in the organic body, has been opposed by Schleicher and Bleek, according to the materialistic tendency of our day, with the view that the content of language, the mind or thought, is the function of the sound.

But, what is the real relation of grammar to logic? Is the position upon which the derivation of grammar from logic rests a tenable one? Here, again, we cannot but agree with Prof. Steinthal. With characteristic skill he argues that logic is a purely critical and formal science, which, as mathematics, makes use of abstract algebraic formulae for the statement of its propositions, whereas grammar is an historical science which deals with definite, real forms. Were the single parts of speech an embodiment of the logical categories, it would necessarily follow that we should find them equally developed in all languages. Such, however, is not the case. And if human speech were nothing more than embodied logic, and grammar

were applied logic, how, having regard to the *unity* of logic, shall we account for the *variety* of languages? Logic, true science, requires us to think concepts and not words. What is right from the logical standpoint may be wrong from the grammatical, and *vice versâ*. For instance, the proposition 'The circle is quadrangular' is grammatically unimpeachable, but, from a logical standpoint, altogether false. On the other hand, the sentence 'Circulus est rotunda' is logically right but grammatically wrong. And, as regards subject and predicate, not only is their order to a great extent conventional, but the very idea of the distinction between subject and predicate is purely linguistic and has no foundation in the mind itself. Again, most logicians would deny that the modality of a judgment belongs to the copula, and yet it seems highly probable that in savage idioms, and notably the Sekwana, the copula does express certainty, probability, and possibility at times past and present. Of course it is possible to make a distinction between abstract and concrete logic by saying that every language has its own logic, its psychologic. But, as Steinthal well says: "it is thoroughly logical and organic that language is not logical".

We have seen, then, that language is not so much a product as rather a function in mental production, that it forms a psychological category and that, hence, the general consideration of its essence forms an essential subject of psychology.

In considering the psychical content and its forms, the Herbartians find themselves unable to accept the definition of psychology so common amongst ourselves, namely, the science of consciousness, because the very fact of the 'narrowness of consciousness' implies a vast number of dim co-vibrating elements in any given psychical act. That is to say, in all psychical life the unconscious plays a most important part. Hence, as it embraces both the conscious and the unconscious, the designation *soul* as the subject of psychology is in every sense preferable. It is true that Herbart based his theory of the *Hemmungssumme* upon a doctrine of the soul's unity, but, in this respect, his disciples do not follow him. And, as regards the categories, it will hardly surprise us to find Prof. Steinthal asserting that they arise unconsciously in the history of man. "As the first animal-cell, so also every category or idea arose at a definite time: the cell at a certain time in the earth's history, the category at a given period in human history." Moreover, since intuition and concept only live in the process, the categories of the concept are the forms and valuation of its content, and at the same time the forms of the process of its formation. We may notice, too, a certain parallelism of the grammatical, logical, and metaphysical categories. Nominative, subject, thing (substance); verb (adjective), predicate, quality (accident); &c.

The question Prof. Steinthal then asks himself is: Is it pos-

sible, as regards the elementary psychical processes, to arrive at some real mental atomic theory? And the answer he gives to that question constitutes his real merit as an original thinker.

Here we must remember that the proper subject of psychology is not intuitions and concepts, but *presentations*. What, then, is the doctrine of the mechanism underlying mental life? In the eternal flux of matter and soul, nothing is stable but *law*, which directs the movements, and *form*, or the idea in which, however often they separate, the elements again unite. Psychologically considered, form is here understood to mean the phases of mental life, such as language, religion, art, marriage, &c., which are often called ideas. But, since form itself is subject to law, we must say that law is the only thing in the universe which is persistent. And law is nothing but a *definite and constant relation of movements*.

Now the laws of presentation are those of *persistence*, *attraction*, and *combination*; and, for the sake of clearness—not because it is essentially necessary—Prof. Steinthal seeks to express the psychical processes in formulæ. Thus, for the elementary processes we have: $A + A + A \ldots = A$, as formulating the psychical law of identity; showing that it is essentially different from that of physics, which is $A + A + A \ldots = nA$. The formula for the blending or amalgamation of ideas is: $A + A + A \ldots = A^n$. For reproduction, which is effected by simple association, the general formula would be: Granted the ligature $a' = b'$, c', $d' \ldots$; and there is given in sensuous perception b; the reproduction is $b' + (c' + d' \ldots)$. The effected ligatures of psychical momenta become connected in two ways, either by one as a whole becoming connected with another as a whole (association and reproduction), or, as more often happens, by the fact that two ligatures are brought into contact because they have certain elements in common. This is called by Steinthal *complication*. "Every member of a series *a*, *b*, *c*, *d* . . . may form the beginning, middle, or end of one or of many other series; for no single psychical atom is so insignificant as not to stand in manifold relation to other atoms, and one can easily see that the concrete psychical creations are complications of many quite heterogeneous elements." *Complication* effects amalgamation, substitution, transfer and infusion of ideas.

Apperception may be defined as the movement of two masses of ideas toward each other for the production of a cognition. Respecting its formulation we have, as the formula for the simplest process, where P is the passive and A the active element: $P + A^1 = A^2$. From a logical standpoint the relation of the two factors to each other may be considered in four ways, namely, as *identification*, *subsumption*, *harmonisation*, and *creation*. The *identifying* apperception consists in the amalgamation of both elements, whereby the individual is apperceived by the individual. In the *subsumptive* apperception, on the other hand,

the special is apperceived by the more general, the percept by the concept, the species by the genus. As regards the sciences we may say that the identifying apperception applies to geography and astronomy, and to botany and zoology, in so far as it is a question of recognising species. On the other hand, mathematics, comparative anatomy, and the science of language may be looked upon as subsumptive apperceptions. The third form is what is known as the *harmonising* apperception. That is to say, the various spheres of apperception stand to each other in an external relationship such as antithesis or indifference. For instance, some one has sustained a heavy loss: a beloved one has died; he says: I cannot yet grasp it, *i.e.*, apperceive it. He can most certainly subsume it, but cannot harmonise it with his emotion; he is still full of feelings, memories, thoughts, plans, wishes, which pre-suppose the life of the dear deceased. Lastly, we have the *creative* apperception, in which the apperceiving momentum itself is first created. To this order belong guessing, supposing, imagining, &c.

Of these kinds of apperception enumerated by Steinthal, it is remarked by Benno Erdmann, first of all, that they are defined according to the scheme of formal logic, whereas psychological considerations should alone have sufficed; and, secondly, that in consequence a really peculiar kind of apperception from a psychological point of view, which he calls the *determining* apperception, has been overlooked. Steinthal says that he certainly had looked to logic for the more immediate qualification of the kinds, as was clearly manifest from his using the word 'subsumptive,' but it was only after a purely concrete search he had done so. He would now suggest the following as the psychological background. The identifying apperception would rest upon amalgamation, but the subsumptive upon complication or concatenation; on the other hand, the harmonising would be based upon the harmony of the object to be apperceived with the dominant group of presentations under which it must be brought.

As regards the *determining* apperception it can only be coordinated to Steinthal's species in the sense of forming a genus by itself. For Steinthal's species of apperception are forms of *cognition*, whilst the *determining* apperception is what we generally call *understanding*. And just as cognition has its kinds or forms of apperception, so also has understanding. The determining apperception is not a simple one, but embraces differences, that is to say, the species of interpretation: the grammatical, real, stylistic, historical and individual. But criticism, the last and psychological form of interpretation, rests upon the harmonising apperception, *i.e.*, upon that of cognition.

Now, the science of language, though a mental science, adopts the method of the natural sciences, namely, the inductive and deductive method, which, psychologically, rests upon the subsumptive and creative apperceptions. Entirely opposed to this

is the *casuistic* method of the mental sciences, which rests upon the harmonising apperception. Hence the results of the two methods are very different. Whilst the inductive and deductive sciences arrive at definite conclusions, the sciences employing the casuistic method (history, for instance) do not get beyond enthymemata, *i.e.*, higher probabilities.

If we watch the building up of the inner world, we shall find it to be a real history of creation. The rise of sensation from feeling is a veritable 'And there was light'. But this is only the first day of creation. Feeling, sensation, and reflex actions are given; but *perception* has still to be learned. It is a well-known fact that we only see surfaces; to see bodies according to their three dimensions, to recognise space-relations, must be first learned. As sensation develops into perception, so the latter goes on evolving into the *concept* or *idea*. Hence the difficulty of characterising perception, *per se*, as a pre-linguistic stage. We can, however, be sure of this, that to primitive perception *self-consciousness* is lacking. Closely connected with this lack of self-consciousness is the fact that, at the stage of perception, there is nothing general but only what is individual. Our sensations are limited to single qualities; our perceptions to single things. There are no perceptions of species. And, as regards the animal soul, we can at all events predicate this of it that, inasmuch as that which is immediately present alone constitutes the subject-matter and content of the perceiving soul, animal consciousness must be limited to the knowledge of individuals, which cannot be comprehended and distinguished as species.

As regards the evolution of man's place in nature from the lower one of the animal, of an anthropoid, Steinthal thinks the evidence is not yet complete. His position is, shortly, this:— The evolution of language has been the most powerful means of raising human consciousness from that of the animal. From its very beginning, speech is a new organ of man. By this the effectiveness of his other organs, of the senses, of thought and feeling, is ensured and enhanced. But this high significance of language for the development of mind by no means implies that it cannot owe its origin to circumstances which, from a zoological point of view, are in no wise necessary, at least not all equally essential. Nay, we might even admit that the highly-developed mammal, as the dog or the horse, would produce speech if there were not hindrances. These indeed can be shown, and with their removal comes the rise of man.

Much seems to depend upon the upright posture which, as Darwin and Caspary have shown, might be won by constant practice whilst in the simious state. And Jäger has done well in laying stress on the fact that the upright position is indispensable for getting that mastery over respiration which is essential to speech. In speaking the breath is sent forth rhythmically. For this the muscles of the ribs and abdomen must be fully under our

control, which is only possible with the upright posture, but quite incompatible with going on all fours. Hence only birds have a certain mastery over their vocal organs and a certain rise and fall of tones.

Thus if only man possesses the possibility of the free emission of the breath, he too will be the only one to have mastery over the vocal chords, to develop the fine muscles in the larynx which stretch, bring together, and separate the vocal chords.

That the skull and brain receive their more complete development with the upright posture can hardly be doubted. But this is important for language only in so far as the connexion of the sensor with the motor centre of speech, the reception of the word-sound by the ear, and the production of sounds by the organs, are established. Herein lies the faculty of onomatopoeia, which is wanting in the mammals, but is to be found in some species of birds. But, since even in the same species it is lacking in certain varieties and is found in others, it is not difficult to understand that it would be established in man with the better evolution of the brain.

And when we have in man an upright onomatopoetic mammal, we have in him the fundamental conditions for language, and thereby the conditions for the further gradual development of other conditions, the finer development of the larynx, finer auricular perception; in short, a more complete evolution of consciousness. This being once given, the complete development, by constant exercise during many generations, of the brain and of the whole head becomes easily intelligible.

Steinthal has always contended that the immeasurable difference between man and animal, which has existed as far back as we can trace, rests on only a small original difference, which, however, was of such a nature that it could increase to an almost indefinite extent. Formerly he thought that this primeval difference was made by the Creator, but he has since affiliated it to the theory of Development.

In considering the question of the rise of language we are at once met by the fact that primitive man accompanied all the impressions, the percepts, which his soul received, with bodily movements, gesticulation and articulate tones. The nature of the reflex action involved in the process is now fairly well understood. No psychical excitation would take place without a corresponding reflected bodily movement; to every definite movement of the soul there corresponded a definite bodily one, which at the same time was physiognomic and sonant. These actions indicate, in fact, the psychical excitations of which they are the reflex. But there is yet lacking the most essential element of speech, namely, the consciousness of this significance, the application of expression. Thus, the beginnings of speech are to be found in the *conscious connexion* of the reflected movement of the body with the excitation of the soul.

"Thus stated, as the suggested analogy required, the question contains the important apprehension as regards the essence and origin of language that speaking rests upon understanding, that it is in itself understanding of one's own sound, that mutual comprehension is the creative act, the source of language. To speak is essentially and before all to understand oneself, to hear one's perception or desire from one's own sound. But since the percept, the subject-matter, understood from the sound is already consciousness, the beginning of language is the germ of self-consciousness. It is true there is not yet a self-conscious subject, but there stands something subjective as object in consciousness."

The link connecting sound and percept is *feeling*. That is to say, in so far as it is a reflex, there is attached to every simple, as to each more compound, sound-form a feeling which stands related to the feeling which is given with the reflected perception of the object. And this leads our author to accept as the basis of language *onomatopoeia*, which he defines as follows:—

"Onomatopoeia is a certain likeness existing between the sound and the percept indicated by it. Only the thought that it is an intentional sound-painting must be put on one side or not be allowed to arise. We must never lose sight of the fact that it is a reflex, first of feeling, then mediately of perception, and finally, by means of this, also of the object; it is therefore a reflex of the effect of the object upon the subject. The influence of the object upon the subject is in the sound, sent back from the subject outwards. So that onomatopoeia may also be sound-imitation, if it is the reflex of sound-waves which impinge upon consciousness."

The onomatopoetic feeling never dies out: it is a psycho-physical fact. No sensation carries with it so great an amount of feeling as that of hearing. Sight is nothing like so emotionally powerful. There are impure colours, and unharmonious colours: they are unpleasant. But only noises and discords are really painful. The ear is adapted to take in excitations which occur together as one total impression and to refer to each other those which follow in the sequence of time and thus to form an ideal whole. In so far as it abolishes space and time, the ear is more ideal than the eye. Hence, when Lazar Geiger says against the present theory:—

"Language has sprung not from the ear, from sound, but from the eye and light. It was not the lowing animal which, demanding a name, went forth to meet the man of early days; but the world with its riches reveals itself in forms and colours to the soul which is gradually maturing to apprehend its beauty."—

We may answer: the two phenomena are not excluding antitheses, nay, from the very evidence of language itself we find facts of sight and facts of sound named from the same onomatopoetic root. For instance, from √*b'l* we get *bloom (Blume)*, *bark* (φλοι-ός), *blood*, and *flow*, *flood (fluctus)*, *flétus*, φλέβ-ες, φλοῖσβος, etc. Similarly in Hebrew √*ṣâḥaḳ* means both *to shine* and *to laugh*.

And it is not only or indeed so much in single words as in

whole sentences that onomatopoeia is so powerful. In the well-known line from Homer's description of Sisyphus :

Αὖτις ἔπειτα πέδονδε κυλίνδετο λᾶας ἀναιδής.

only κυλ is an onomatopoeia, whilst the masterly effect in Milton's

With hideous ruin and combustion, down
To bottomless perdition ;

is produced without a single mimetic root. The same applies to Virgil's

Sed fugit interea, fugit irreparabile tempus.

" If then," says Steinthal, " the onomatopoetic feeling and the sound-reflex are an established fact, we may accept it theoretically or hypothetically as the principle of the original creation of language."

Hitherto we have been considering language as the pathognomic representation of perceptions. But how was the transition effected from the word to the sentence ?

" The onomatopoetic sound-reflex, because and as long as it indicates whole perceptions and intuitions, is a sound-gesture ; it is only when it stands for a mere momentum of a sensuous intuition that it becomes a word, which first appears in the form of a root. But then the immediate connexion of the meaning with the feeling is necessarily broken, the onomatopoetic character of language disappears. The root is no longer onomatopoetic. Thus, where language first comes forward in its true individuality, where it wins its full intellectual character, it breaks through onomatopoeia ; and the word in its true sense first arises with the form of the sentence, *i.e.*, simultaneously with the antithesis of subject and predicate, which soon becomes fixed for the difference in naming things and expressing states and changes. The logical character of a word seems to be decidedly antagonistic to its onomatopoetic origin. If it is undeniable that, in the later history of nations, many a word has become so phonetically changed that in sound it has come to onomatopoetically approach the object named, it is also probable, on the other hand, that, in early times, when the onomatopoetic principle was left, the appearance of onomatopoeia became obscured and avoided."

This second stage of linguistic development Steinthal designates as the *characterising*. The evolution of language itself is the cause that onomatopoeia is absorbed by the characterising inner form, and that then the etymon is lost in the third inner speech-form, or linguistic *custom*.

Respecting the formation of the sentence, much would seem to depend upon the fact that many objects may be included in one and the same perception ; *suckling*, for instance, contains the woman and the child in *one* act. This phenomenon having once been fixed with the sound-reflex *dă-dă*, this sound could serve not only for the suckling *(filius)* and the woman *(fémina)* the nurse and the grandmother (τήθη), but also for the particular organ brought into play (θηλή, *teat*), and would be both subject and predicate. Thus, the sentence *dă dadă* would mean *filius fellat*, the suckling sucks. But since the same being is perceived

in many ways, all of which may seem equally essential to it, the intuition (perceptual complex) of the same could be apperceived as well by the one as by the other. The same being that suckles has previously given birth (√*ga-ga*) and will bear again, it being her function to be the bearer (*γυνή, queen*). So that manifold expression was possible; and instead of the wearisome repetition *dà dadà* one might say: the parent suckles, *ga dadà;* the suckler has given birth, *dà gaga*.

Into the formulation of this process, space does not permit us to enter. The rest of Part I. is taken up with an account of the various pathological phenomena which occasionally arise in the function of speech; whereby the opinion expressed in some of Steinthal's earliest works, as to the threefold nature of the factors operative in the act of speech, receives confirmation. It has been found that the function of speaking is controlled by three centres, namely, the general centre of intelligence, the motor or sound-centre, which directs the bodily mechanism of articulation, and the centre for the psychical side of language. Part II. of the *Abriss* will deal with language in its historical aspects, and to that part all linguistic students are looking forward with the greatest interest.

H. M. Baynes.

VII.—NEW BOOKS.

[*These Notes do not exclude Critical Notices later on.*]

Mental Evolution in Animals. By GEORGE JOHN ROMANES, M.A., LL.D., F.R.S., Zoological Secretary of the Linnean Society. With a Posthumous "Essay on Instinct" by CHARLES DARWIN. London: Kegan Paul, Trench. Pp. 411.

The author in the present treatise (just come to hand) publishes only part of the work on Mental Evolution which he promised in *Animal Intelligence* (1882). As he found it necessary, from considerations of space, to publish separately his compendium of facts relating to animal intelligence before discussing the general question of mental evolution, so, for a like reason, he now puts off to another work the special question of mental evolution in man, which, the more he handles it, he finds growing upon him (as may well be believed) "in depth, width and complexity". In the present simpler division of his whole subject, he allots an exceptionally large space to the treatment of Instinct (pp. 159-352), "looking to the confusion which prevails with reference to this important branch of psychology in the writings of our leading authorities". In this part of the work are incorporated a considerable number of extracts from unpublished MSS. of Darwin; and the Appendix (pp. 355-84) gives "the full text of a part of Mr. Darwin's chapter on Instinct written for the *Origin of Species* but afterwards suppressed for the sake of condensation". The MSS. were given to the author by Darwin with the request that he should publish any parts of them that he chose in his works on Mental Evolution. The consecutive portion, after being read to the Linnean Society, is now published in its present form with the consent of Darwin's family.

Grammar and Logic in the Nineteenth Century as seen in a Syntactical Analysis of the English Language. By J. W. F. ROGERS, Inspector of Schools, Sydney. London: Trübner, 1883. Pp. xvi., 211.

This work consists of three parts: "Word-classing"; "Syntactical Analysis of the English Language"; "Structure of Propositions". Though in the first part, which ends in a commonplace classification of the Parts of Speech on the principle of "usage," the author has to remark unfavourably on more than one logician of repute, it is in the third part that the short-comings of the tribe are judged. Having made in his second part a more careful analysis of the various kinds of sentences than is current among grammarians, he is led on to maintain that it is an error of the logicians to make any distinction of the so-called copula from the predicate. This he does by way of a critical review of a series of statements culled from the writings of "Dr. Morell, Dr. Crombie and Rev. J. Earle, Dr. Sullivan, Archbishop Whately and Cardinal Newman, Mr. J. S. Mill and Mr. Grote, Dr. Latham and Mr. Hobbes, W. S[palding], Mr. Mason, Dean Mansel, Prof. De Morgan, Sir W. Hamilton and Herr Krug, the Rev. J. Balmes, Dr. Brownson, Aristotle, Aquinas". The list is remarkable alike in its inclusions and its omissions; the reason of the order and the grouping of the names must be sought in the treatise itself. Some of the author's criticisms are acute enough and it is not difficult for him to find inconsistencies both in the individual writers and in the collection of them; but he fails altogether to see the purpose that determines the tradi-

tional analysis, as carried out in the whole body of regulative doctrine with which it is connected. His own view of proposition remains devoid of all logical value, till he can show that it is of equal account for regulating the process of judgment or use of propositional forms, to say nothing of mediate reasoning. He may limit himself most profitably to the grammatical question.

Kant's Critique of Practical Reason and other Works on the Theory of Ethics. Translated by THOMAS KINGSMILL ABBOTT, B.D., Fellow and Tutor of Trinity College, Dublin. Third Edition, revised and enlarged. With Memoir and Portrait. London: Longmans, 1883. Pp. lxiv., 368.

The present edition adds to the contents of the second (enlarged) edition, which appeared in 1879, a translation of the General Introduction to the composite treatise *Die Metaphysik der Sitten* (why called in the translator's preface *Metaphysische Anfangsgründe der Sittenlehre?*) and of the Preface and nearly the whole Introduction to its second part (as first published) the *Metaphysische Anfangsgründe der Tugendlehre*. Mr. Abbott can now, perhaps, claim with reason to have given "the whole of Kant's works on the General Theory of Ethics," but when he reaches his fourth edition it might still be well to enlarge still farther by the addition of the body of the *Tugendlehre*, surpassing his predecessor Semple in the rendering of this as much as he has done in the other pieces common to their two attempts to present Kant's ethical doctrine in English; nor would it be amiss to throw in (with Semple) the Introduction to the *Rechtslehre* also.

A History of Eclecticism in Greek Philosophy. Translated from the German of Dr. E. ZELLER, Professor in the University of Berlin, with the Author's sanction, by S. F. ALLEYNE. London: Longmans, 1883. Pp. viii., 383.

Miss Alleyne, who began by translating (with the help of Prof. Goodwin) that section of Part II. of Zeller's great work which treats of 'Plato and the Older Academy,' and who afterwards successfully took up the whole of Part I. dealing with the 'Pre-Socratic Schools,' has now added to her achievement a rendering of that section of Part III. which is occupied with 'Eclecticism,' after the other section on the 'Stoics, Epicureans, and Sceptics,' already translated by another hand. The publishers again announce, as on the publication of the 'Pre-Socratic Schools' in 1881, that with the long-promised division of Part II. on 'Aristotle and the Elder Peripatetics,' still "in preparation," the English Translation of Zeller's work will be completed; but, as they have been better than their word by now adding the present section on 'Eclecticism,' so it may be hoped they will again extend their view and really complete the work with a translation, by Miss Alleyne's competent and diligent hand, of the second division of Part III. which includes the later Scepticism, beginning with the school of Ænesidemus, and the final effort of Neo-Platonism.

The World as Will and Idea. By ARTHUR SCHOPENHAUER. Translated from the German by R. B. HALDANE, M.A. and J. KEMP, M.A. Vol. I. London: Trübner, 1883. Pp. xxxii., 532.

Vol. XXII. of the "English and Foreign Philosophical Library" presents a translation of the first four Books of Schopenhauer's famous work, containing the whole direct exposition of his systematic thought. Two volumes, to follow, will complete the translation of the work as it stood in the third edition issued in 1859 shortly before the author's death; the

Appendix on the Kantian Philosophy leading in the "Supplements" to the four Books, which run (section by section) to considerably greater length than the Books themselves. At the same time, the translators promise to include an abstract of the earlier *Vierfache Wurzel* to which Schopenhauer is for ever referring. While they have aimed at being as literal in their rendering as was anywhere necessary to preserve the sense of the original, they have set themselves, on principle, to break up the lumbering German construction of sentences which even so comparatively good a writer as Schopenhauer inflicts upon his readers, and they deserve all praise for the general style of their most difficult work : some slips in detail (apparently due to haste) they have the opportunity of correcting at the next stage of their labour. Real intelligence has been brought to the task of finding due equivalents, in relation with the context, for the technical terms ; and the best word has certainly been chosen for the ever-perplexing *Vorstellung* when it is rendered by Idea (in the broad sense to which Locke gave currency).

Man a Creative First Cause. Two Discourses delivered at Concord, Mass., July, 1882. By ROWLAND G. HAZARD, LL.D. Boston : Houghton, Mifflin, 1883. Pp. xvi., 112.

In these discourses, the author, while reproducing in concentrated form the doctrine of his previously published *Freedom of Mind in Willing*, has also had in view the more general object of vindicating the fruitfulness of metaphysical science by showing (1) how it may be a means of making the same amount of intellectual power more effective, through the invention or discovery of better methods in its application ; (2) how it may achieve a yet higher—the highest possible—utility in creating, moulding and elevating the moral character.

Critique des Systèmes de Morale contemporains. Par ALFRED FOUILLÉE. Paris : Germer Baillière, 1883. Pp. xx., 412.

"L'auteur, qui vient de publier une 2e édition de son *Idée moderne du droit* avec des corrections et additions très importantes, publie aujourd'hui une critique complète des diverses doctrines de morale contemporaines. Il fait la guerre au dogmatisme sous toutes ses formes et transporte le 'doute méthodique' en morale. Kant a annoncé et commencé la *critique* de la raison pratique, de la moralité ; selon l'auteur, il ne l'a pas faite ou du moins achevée : l'auteur entreprend de pousser cette critique jusqu'au bout. Il admet tous les faits et toutes les lois mis en lumière par la morale utilitaire et évolutionniste, mais il croit qu' elle a besoin d'être complétée. L'auteur s' efforce d'introduire dans la morale évolutionniste sa doctrine personnelle des *idées-forces*, selon laquelle la conscience et l'idée sont des facteurs actifs de l'évolution, non de simples *reflets* passifs d'un mouvement accompli sans elles. Il reproche en outre à M. Spencer de n'avoir fait aucune place en morale à cette idée de l'Inconnaissable que l'auteur des *Premiers Principes* maintient cependant en metaphysique. Puis vient la critique du positivisme français, auquel l'auteur reproche de ne pas avoir ramené l'altruisme et l'égoisme à une unité fondamentale. La critique du néo-kantisme est très étendue. L'auteur reproche aux kantiens leur dogmatisme moral et fait une vive critique de l'impératif catégorique. Après avoir examiné en outre la morale pessimiste des Allemands, la morale spiritualiste française, la morale esthétique fondée sur l'idée du beau, la morale mystique et théologique, l'auteur conclut en esquissant sa propre doctrine. Selon lui, la moralité est fondée d'une part sur la *science*

positive, d'autre part sur le *doute* et les *conjectures métaphysiques*. La fraternité n'est que la mise en pratique de la plus haute spéculation sur l'univers et sur le sens du 'mystère éternel'."

Examen critique de la Loi psychophysique, sa Base et sa Signification. Par J. DELBOEUF, Professeur à l'Université de Liège. Paris: Germer Baillière, 1883. Pp. 192.

Carrying out his plan of collecting his numerous minor writings under the general title of "Questions of Philosophy and Science," the author here follows up his *Éléments der Psychophysique* (see MIND XXXII. 620) with a reprint of various critical articles written in 1877-8. The volume is disposed in two parts—"Hering against Fechner" (pp. 1-69), and "Fechner against his Adversaries" (pp. 71-168), with supplementary notes. The first gives an account of Hering's famous onslaught (1875) upon Fechner's psychophysical law, the force of which Delboeuf concedes at many points, but which he repels so far as it impugns the mathematical expression of the law. In the second part he follows Fechner over the ground traversed in the work *In Sachen der Psychophysik* (1877), and then enters upon an independent discussion of the possibility of measuring sensation, concluding with a short exposition of his own "new theory of sensibility". His general judgment on Fechner's psychophysical doctrine is that, though its range is essentially limited, not extending beyond the domain of elementary sensation, its results are yet of the highest importance, so that no pains should be spared to obtain for it a formula admitting of strictly rational interpretation. To supply this is the special object of his own polemic with Fechner.

Logik. Eine Untersuchung der Principien der Erkenntniss u. der Methoden wissenschaftlicher Forschung. Von WILHELM WUNDT. Zweiter Band. 'Methodenlehre'. Stuttgart: Enke, 1883. Pp. xiii., 620.

The second and concluding volume of Prof. Wundt's *Logik* runs to even greater length than the first, which was reviewed fully in MIND XIX. on its appearance in 1880. As that corresponded with the first topic of the sub-title, 'Cognition,' so the present volume corresponds with its second topic, 'Method'. It consists of four main sections, with subdivisions: I. General Doctrine of Method (1, Methods of Investigation. 2, Forms of Systematic Exposition), pp. 1-73; II. Logic of Mathematics (1, General Logical Methods of Mathematics. 2, Arithmetical Methods. 3, Geometrical Methods. 4, The Notion of Function and the Infinitesimal Method), pp. 74-219; III. Logic of the Natural Sciences (1, General Foundations of Natural Inquiry. 2, Logic of Physics. 3, Logic of Chemistry. 4, Logic of Biology), pp. 220-477; IV. Logic of the Mental Sciences (1, General Foundations of the Mental Sciences. 2, Logic of the Historical Sciences. 3, Logic of the Social Sciences. 4, The Methods of Philosophy), pp. 478-620.

Geschichte der neueren Philosophie von Baco u. Cartesius bis zur Gegenwart. Von Dr. ALBERT STÖCKL, Professor der Philosophie an der bischöflichen Akademie in Eichstatt, Mitglied der römischen Akademie des heil. Thomas. 2 Bände. Mainz: Kirchheim, 1883. Pp. viii., 502; vii., 643.

The author intends this work as a continuation of his elaborate *Geschichte der Philosophie des Mittelalters*, of which the third and concluding volume appeared in 1866. It is the first attempt by a Roman Catholic to give a detailed exposition and appreciation of the whole history of modern philo-

sophy, founded on direct study of the original sources. The author is emboldened to the task, which has seemed too perilous to others of his faith, by his conviction that the story of the utter collapse of all modern efforts to arrive at philosophical truth can only serve to bring again into repute the "Old-Christian" philosophy which grew up within the Church and attained its highest development in the thought of Thomas Aquinas. He divides the history into three periods: the first covering Bacon, Herbert of Cherbury and Hobbes on the one hand, and on the other Descartes and his followers, including Spinoza, with various counter-currents of thought (in Cudworth, Pascal, Huet, &c.); the second comprehending the new movement begun by Locke in England and carried out by the Deists on the one hand and by Berkeley and Hume on the other till Reid's reaction, with the contemporary movements in France and in Germany; the third taken up with the Kantian philosophy followed out into its various developments, and with the multitude of minor, dependent or independent, starts that have been constantly renewed down to the present time. With particular thinkers, like Hobbes, Spinoza and also Locke, who seem to the author specially representative of the modern spirit, he takes no little pains; the later German movement, from Kant onwards, is also followed out, even in some of its less familiar directions, with much care. The futility of modern philosophy appears not less manifest to the author in those thinkers who have sought to keep the interests of religion in view; indeed, some of his severest condemnation is reserved for those members of his own confession who, early or late, have adopted or sought to come to terms with the modern principles. Specially interesting, though brief, is his account of the recent revival in different countries of the Thomist philosophy, now again authoritatively proclaimed to be the sheet-anchor of Catholic doctrine. Scholasticism, he thinks, went down before the rise of modern thought for no other reason than because (after Thomas) it became so careless of literary form in presenting its truths to the world, at a time when the classical masterpieces were becoming known. It has now only to become again careful in this respect, to aim at general intelligibility and to incorporate what is true in the results of later natural science; and it will again prevail as triumphantly as ever. It should be added that Dr. Stöckl selects for exposition J. S. Mill, Darwin and Bentham as the important representatives of the latest English thought. Of living English thinkers he seems to have heard nothing, and his enumeration of those of the last generation is more curiously faulty than can be forgiven even to a foreigner's unfamiliarity and haste.

Das Princip der Infinitesimal-Methode u. seine Geschichte. Ein Kapitel zur Grundlegung der Erkenntnisskritik. Von Dr. HERMANN COHEN, ordentlichem Professor der Philosophie an der Universität Marburg. Berlin: Dümmler, 1883. Pp. vii., 162.

This is a special *excursus* in Theory of Knowledge or, as the author would rather call it, Critick of Knowledge (*Erkenntnisskritik*), a name which, he thinks, is not so likely as the other to give the impression that a merely psychological analysis of the apparatus of knowledge is intended instead of a philosophical investigation of knowledge as a fact, reaching its consummation in science as grounded on principles. His object is to show, in the particular case of the notion of infinitesimals, the import of Kant's category of Reality for knowledge. A general introduction (pp. 1-51) defines the problem and shows how the conception of infinitesimals gradually made its way into science; the properly historical consideration of the notion as developed by Leibniz, in relation to Newton, and as variously

interpreted by later mathematicians and thinkers, follows (pp. 52-123); and the work ends with a series of deductions or applications (pp. 124-62). having present scientific or philosophic interest.

Unsere Naturerkenntniss. Beiträge zu einer Theorie der Mathematik u. der Physik von Dr. K. KROMAN, Docenten der Philosophie a.d. Universität zu Kopenhagen. Ins deutsche übersetzt unter Mitwirkung des Verfassers von Dr. R. Von FISCHER-BENZON. Kopenhagen: Höst, 1883. Pp. xvii., 458.

This work gained for the author a gold medal given by the Royal Danish Academy of the Sciences and has now been translated from Danish into German in order to procure for it a wider circulation. Though it might have had a somewhat different form had it not been written for the narrower circle of Danish readers, it is left in its original shape, because the author found that he had been really successful in composing a philosophical work on the foundations of science which men of science—the chief mathematicians of his own country—recognised as having a meaning for them. After a general introduction on the nature of cognition, it falls into two parts, dealing with *a priori* and with empirical knowledge or with the formal sciences (logic and mathematics) and with the real (physical) sciences. The author bases this division upon a thoroughgoing acceptance of the distinction between objects as *made* and as *found*. The firmness with which this principle is conceived and carried out invests the book with a real importance. It is a distinctly noteworthy contribution to that theory of science which has become for the time the first business of philosophy. Having written apparently (or first published) in 1881, the author declares that year to be not more memorable as the centenary of Kant's *Kritik d. r. V.* than as the date of Lotze's death, the two thinkers so brought together being in his view the greatest of German philosophers, if not the greatest that have ever lived; or of one thing at least he is sure, that, with the addition of Mill, they are to him the dearest names in philosophy.

Freud und Leid des Menschengeschlechts. Eine social-psychologische Untersuchung der ethischen Grundprobleme. Von G. H. SCHNEIDER, Dr. Phil. Stuttgart: Schweitzbart, 1883. Pp. xviii., 380.

The author, whose previous works, *Der thierische Wille* and *Der menschliche Wille*, have been reviewed in MIND XIX., XXIX., continues in this book his general task of making psychological application of the Evolution-theory and occupies himself specially with Feeling as it determines human conduct. He does not offer it as 'The Darwinian Ethics' which he has had in view, but rather as a preliminary investigation, in outline, of the fundamental ethical problems from the evolutionary point of view. The topics included are—Good and Ill as expression of the promotion and arrest of vitality; Sum of Goods and of Ills; Relativity of Goods and Ills; Direct and indirect effects of Goods and Ills; Goods and Ills as guides of action; Subordination of Goods and Ills; Causes of the chief Ills now afflicting civilised nations; Diminution of Ills and increase of Goods; Fate and Determination; Dying and living-on and continuance of Goods and Ills after 'death'; World-judgment and World-justice.

Zur naturwissenschaftlichen Behandlungsweise der Psychologie durch u. für die Völkerkunde Einige Abhandlungen. Von A. BASTIAN. Mit einer Tafel. Berlin: Weidmann, 1883. Pp. xxviii., 231.

The first of the seven essays here collected as an offering to the German Anthropological Society at its meeting of this year, is a careful argument

(pp. 1-29), conducted in the author's eclectic manner, for placing psychology on an ethnic foundation if it is to satisfy the conditions of natural science. The subjective aspect of mind is, however, by no means overlooked. Two others of the essays are of philosophic interest—"Gedichtetes u. Gedachtes in naturwissenschaftlichen Controversen" (pp. 29-51), and "Religiöses u. Rechtliches" (pp. 156-211). The remaining four are more specially anthropological: "Die Andamanen"; "Aus Polynesien"; "Die Pubertäts-Weihe der Junglinge"; "Ueber die Oster-Insel".

Ueber das Princip der Organisation u. die Pflanzseele. Von. Dr. ENGELBERT LORENZ FISCHER, Privatdocent der Philosophie an der k. Universität Würzburg. Mainz: Kirchhein, 1883. Pp. xv., 144.

Der sogenannte Lebensmagnetismus oder Hypnotismus. Same Author and Publisher, 1883. Pp. viii., 119.

These works are written from the scientific point of view, but the author takes pains to show or suggest that his conclusions accord with Biblical and Catholic doctrine. In the first, he seeks to mediate amongst the four different theories of organic life which he distinguishes as (1) the idealistic or type-theory, (2) the vital-force-theory, (3) the soul-theory, (4) the mechanical theory; finding no other ultimate explanation of life than as brought to pass by the absolute First Cause *(Urgrund)* of all being, and supporting his views further by a special consideration of the facts of vegetable life, which evince the existence of the vegetative soul as an actual immaterial principle but not the proper cause of organisation. In the other essay, he follows Braid mainly and devises, in more or less agreement with other recent investigators in Germany, a "physiopsychological" theory of the facts of hypnotism, as against any supposition of special "mesmeric" or "electrobiological" influences.

Ueber das Richtige. Eine Erörterung der ethischen Grundfragen. Von Dr. JUL. BERGMANN, ord. Prof. der Philosophie an der Universität zu Marburg. Berlin: Mittler, 1883. Pp. vii., 178.

This work falls into five sections, the titles of which give a fair notion of its scope: "The notion of Right in general" (pp. 1-30); "The notion of the morally Right" (pp. 31-67); "The doctrine of Happiness and of Perfection" (pp. 68-113); "The doctrine of Morality as a formal disposition *(Beschaffenheit)* of Will" (pp. 114-152); "Moral Goods and Duties" (pp. 153-176).

Tonpsychologie. Von Dr. CARL STUMPF, Professor der Philosophie an der deutschen Universität zu Prag. Erster Band. Leipzig: Hirzel, 1883. Pp. xiv., 427.

The author, who has already made his mark by his investigation of the psychological origin of the notion of space, here takes up an inquiry to which an early and unbroken devotion to music has helped to direct his scientific attention—the description, namely, of the whole range of psychical functions excited by tones. Though the subject appears to him to have been strangely neglected, considering the advanced state of physical and physiological acoustics (he does not seem to know of Mr. Gurney's elaborate work on *The Power of Sound*), there is, he maintains, no department of psychological inquiry so well provided with means and materials for the attainment of positive results. The present volume does not reach as far as the properly musical problems, but is concerned only with the

judgment of successive tones, after a preliminary section (pp. 1-133) on sense-judgments generally. We hope to return to the work at greater length.

Präludien. Aufsätze u. Reden zur Einleitung in die Philosophie. Von WILHELM WINDELBAND, Professor an der Universität Strassburg. Freiburg i. B. u. Tübingen : Mohr, 1884. Pp. vii., 325.

The author, having been occupied for years with the historical studies that resulted in his recent *Geschichte der neuern Philosophie*, and being now to pass to independent philosophical investigation, offers in the ten essays here brought together a sort of programme of his future line of work. The subjects are the following : (1) What is Philosophy ? (2) On Socrates ; (3) In Memory of Spinoza ; (4) Immanuel Kant ; (5) On Friedrich Hölderlin ; (6) On Thinking and Reflection ; (7) Norms and Natural Laws ; (8) Critical or Genetic Method ? (9) On the Principle of Morality ; (10) *Sub specie æternitatis :* only (3) and (6) have been printed before. The point of view is in the main Kantian. "All of us who philosophise in the 19th century are followers of Kant" ; "but to understand Kant means to go beyond him".

On Mr. Spencer's Data of Ethics. By MALCOLM GUTHRIE. London : Foulger. Pp. about 120.

"This *forthcoming* volume concludes the author's critical examination of Mr. Spencer's works considered as a system of cosmical explanation. Since Mr. Spencer places the understanding of Ethics upon the understanding of purposed action and affiliates the latter upon the understanding of action in general, this view of Ethics is first examined (c. 1). Afterwards the more limited and properly scientific view of Ethics in relation to biological and sociological Evolution is considered (cc. 2-4). An inquiry as to the nature and authority of the Ethical Imperative occupies c. 5, showing its complex and variously relative nature. Previous systems of Ethics as affected by Evolution, are then considered (c. 6). The problem and explanation of Free-will is examined from an evolutionary point of view in c. 7 ; a consideration of Evolution and Religion occupies c. 8 ; and the Summary (c. 9) completes the work. The aim of the critic has been to examine the *Data of Ethics* as dependent upon and as related to the whole scheme of Philosophy as propounded by Mr. Spencer."

Other BOOKS received :—

H. Coke, *Creeds of the Day, or Collated Opinions of Reputable Thinkers*, 2 vols. London : Trübner, pp. 302, 324.

W. Arthur, *On the Difference between Physical and Moral Law* (Fernley Lecture). London : Woolmer, pp. 244.

Le Comte Goblet D'Alviella, *L'évolution religieuse contemporaine chez les Anglais, les Américains et les Hindous.* Paris : Baillière, pp. 431.

O. Schrader, *Sprachvergleichung u. Urgeschichte.* Jena : Costenoble, pp. 490.

VIII.—CORRESPONDENCE.

Mr. Monck, in his review of my *Elements of Logic* (MIND XXXII., 603), has touched on one or two points in which I have ventured to deviate from the beaten track. As the questions raised may perhaps be of interest to logicians generally, may I ask permission to make some observations in explanation and defence of my views?

The first point relates to *Reductio per* (or *ad*) *Impossibile*. Logicians have sometimes objected to this process as "awkward, roundabout, and operose" (Bowen). The way in which it is usually stated is indeed needlessly awkward. But my objection is more fundamental. I maintain that it is a delusive process, inasmuch as it is not really Reduction at all. My argument, which was published at length in *Hermathena* for 1881, is as follows:—The true use of Reduction is to show that all mediate reasoning is capable of being brought under one type, that to which Aristotle's Dictum applies. Hence in the case of any given syllogism the problem of Reduction is: From the given premisses to deduce the required conclusion by reasoning which (so far as it is not immediate) is wholly in the first figure. This is what is actually done in the case of all the moods except Baroko and Bokardo. Let us confine ourselves to Baroko.

'Every P is M; Some S is not M; therefore Some S is not P.' This is 'reduced' to Barbara thus:—'Every P is M; Every S is P; therefore Every S is M'. So far, well; but how do we elicit from this the required conclusion, 'Some S is not P'? Thus: 'Since the conclusion is false and Some S is not M, one of the premisses must have been false; and, as the major was given true, the minor was false, and therefore Some S is not P'. Now what I say is, that since this latter piece of reasoning is clearly an essential step in the argument, we are bound to put it into the first figure, and hitherto it has not been shown that this is possible. All that the syllogism in Barbara has done for us is to show that, granting that 'Every P is M,' we have a right to say that, 'If every S is P, then every S is M'. We then reason from the denial of the consequent and say, 'But Some S is not M, therefore Some S is not P'. Mr. Monck has taken precisely the same view of the function of this syllogism in Barbara. He says: "When this new conclusion is reached, we have established that, *if* the original conclusion is false (that is, if its contradictory is true), either the Retained Premiss or the Suppressed Premiss, or both of them, are false; whence it follows, again, that if both premisses are true, the original conclusion is true also" (*Introduction to Logic*, p. 179). I think the reasoning is less awkward if we state once for all that the premiss 'Every P is **M**' is granted; we have then a conditional argument founded on Barbara which is natural enough. It is also easy enough to reduce it to a categorical form, thus: For the conditional: 'If every S is P, every S is M'; we substitute the categorical equivalent: 'Every P is M'. But as the denial of the consequent gave us 'Some S is not **M**,' for our minor, we have simply got back our original friend Baroko.

Mr. Monck's criticism is as follows: "In every syllogism the truth of the conclusion depends on the hypothesis that the premisses are true, and if this hypothesis is sufficient to render the reasoning hypothetical, every syllogism is a hypothetical syllogism. But if the distinct existence of the categorical syllogism is conceded, where is the material difference between showing that the conclusion is true on the hypothesis that the premisses are true, and showing that one (at least) of the premisses is false, on the

hypothesis that the conclusion is false?" I reply, the difference is precisely that between Barbara and Baroko. Assuming that the major (A) is true, if we infer the truth of the conclusion (A) from the truth of the minor (A), our reasoning is in Barbara; but if we infer the falsity of the minor (A), *i.e.*, the truth of its contradictory (O), from the falsity of the conclusion (A), *i.e.*, from the truth of its contradictory (O), our syllogism is in Baroko. I do not see how the conclusion in Baroko is to be inferred from the syllogism in Barbara, except by something equivalent to a hypothetical syllogism. For we deduce it from the fact of the sequence exhibited in Barbara. But to state the fact of the sequence is to state a conditional proposition. As the process is ordinarily stated, we are bidden to reason from the fact of the sequence, but only in a common-sense fashion, without explicitly stating our premisses. The immediate inferences, from the falsehood of A to the truth of O, and so on, are carefully specified, at such length that the actual turning-point of the process is concealed, and we do not see that the original Baroko is there still.

I do not absolutely assert that it is impossible to state this reasoning in the first figure; what I say is that it never has been done, and that I cannot see how it is to be done. I would add that the problem is not solved by proving (supposing this possible) that the reasoning in Baroko is valid. For this would be to prove that this form of reasoning is logically admissible, whereas what is required is to show that it is not a distinct form from that of the first figure.

There is one other point on which I should like to offer some explanation. I have stated that the proposition 'A is equal to B,' is a proposition affirming identity, namely, between the magnitude of A and the magnitude of B, and on this ground I say that it is convertible simply, *i.e.*, we can say 'The magnitude of B is (identical with) the magnitude of A'. Mr. Monck thinks that I have in this curiously mixed up the common system of logic with the Hamiltonian. But what I have said has really no connexion with the latter system. Without reference to that system, I maintain that certain (specified) kinds of propositions express identity of two notions or things, and that Logic ought to take account of these. The simplest of all mediate reasonings is:—

A is identical with B;
B is identical with C;
∴ A is identical with C.

A logical doctrine which tells us that this reasoning is formally invalid, and can only be made correct by some extremely roundabout process, which will bring the expressed relation of identity under that of containing and contained, is so far self-condemned. The following well-known argument of Locke consists of a series of such propositions: "The having the essence of any species being that which makes anything to be of that species, and the conformity to the idea to which the name is annexed being that which gives a right to that name, the having the essence and the having that conformity must needs be the same thing; since to be of any species and to have a right to the name of that species is all one."

The commonest exemplification of propositions in Identity (not identical propositions) is in mathematics, where A = B means "The magnitude of A is identical with the magnitude of B". The necessity of admitting this principle appears farther from the failure of the attempts to treat geometrical reasoning, for instance, on any other. Those who have given us geometrical proofs in syllogistic form (*e.g.*, Mill) have exhibited them as follows:—Let the argument be: 'A is equal to B, B is equal to C; ∴ A is equal to C". Here is the 'correct' syllogism according to Mill:—

'Things equal to the same are equal to one another;
A and C are equal to the same (B);
∴ A and C are equal to one another.'

It seems to be admitted without question that the major, as it stands, conforms to the logical type 'Every X is Y'. But it does not, for 'Things, &c.,' is not distributed. We cannot say 'Everything equal to the same is equal to one another'. Secondly, 'equal to the same' and 'equal to one another' are expressions which have no meaning apart from the subject of which they are predicated. Let me explain. Take Y to represent any term capable of being a logical predicate; then if A and B are Y, and C and D are Y, we can combine these statements and say, 'A and B and C and D are Y'. But if we substitute for Y 'equal to the same,' or 'equal to one another,' this would be absurd. Writers who profess to state the reasoning with anything like logical exactness might have been expected to see this, and to say 'Every pair (or group) of things equal to the same is a pair (or group) of things equal to one another'.

But there are more serious objections still. First the pretended minor: 'A and C are equal to the same (B),' is not one proposition but two, 'A is equal to B, and C is equal to B'. If we say (as just suggested) 'A and B are a pair of things equal to the same,' this is an inference from the two separate propositions, 'A = B' and 'B = C' (the latter, by the way, converted!). Next, the conclusion, 'A and C are equal to one another' is also two propositions, not in substance only, but even in expression It asserts 'A = C' and 'C = A'. A logician who holds that 'C = A' cannot be logically inferred from 'A = C' has no right to admit the proposition, 'A and C are equal to one another' as a simple one. For him it is as much two distinct propositions as 'Equilateral and equiangular triangles are the same'. Finally, the fact is, the real premisses are the two propositions combined in the so-called minor, and the major (so called) is not a premiss at all, but the formal principle of the reasoning. Substituting 'identical with' for 'equal to,' we have a principle which is not limited to this or that matter, but is even more fundamental than Aristotle's Dictum itself. The logician who exhibits the mathematical syllogism in the form given above, ought in consistency to exhibit Barbara somewhat as follows: 'Whatever is predicated of a class under which something else is contained may be predicated of that which is so contained; But P is predicated of the class M, under which S is contained; therefore P may be predicated of S.'

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IX.—MISCELLANEOUS.

We regret to record the death, at Oxford, Sept. 24, 1883, at an advanced age, of Mr. T. Collyns Simon, well known as the author of *The Nature and Elements of the External World*, 1848, and as the offerer of a prize of £100 for the first conclusive disproof, within a year from that date, of the Berkeleyan doctrine of Universal Immaterialism, the judges to be men of recognised philosophical attainment named by the refutant himself. Descended from a Huguenot family, Collyns Simon was born at Cork in or about the year 1813. He kept nearly all his terms at Oxford, but owing to ill health did not proceed to a degree. The honorary degree of LL.D. was conferred upon him later by the University of Edinburgh. Latterly he resided much abroad, and had many friends among the leading Professors of philosophy, both in Germany and Italy. He contributed largely at one time to the *Zeitschrift für Philosophie &c.*, edited by Ulrici. But it was in Italy that he resided longest, where he counted amongst his friends the veteran Count Mamiani, SS. Bonatelli, Ferri, Bertini, Fiorentino, and others, and contributed repeatedly to the *Filosofia delle Scuole Italiane*. To the *Contemporary Review* he contributed the striking articles on "The present state of Metaphysics in Great Britain," in June, 1868, and two in January and March, 1870, on "Hegel and his connexion with British Thought". We are glad to learn that an early republication of these and many of his shorter writings is in contemplation.

Rarely is a life so entirely and consistently devoted to philosophy as was that of Collyns Simon. Those too who had the privilege of knowing him personally will not easily forget the uniform gentleness, courteousness, and chivalry of his character, or (in later days) that serene and venerable aspect which seemed an almost ideal presentment of philosophic age.

The Fifth Session of the Aristotelian Society for the Systematic Study of Philosophy was opened on Monday evening, Oct. 15, at 8 John Street, Adelphi, with an address from the President, Mr. Shadworth H. Hodgson, on "The two Senses of 'Reality'". The two following meetings, held on alternate Mondays, were devoted to papers by Dr. A. Senier, Hon. Sec., and Mr. E. Hawksley Rhodes, Vice-President, on Berkeley's *New Theory of Vision;* and the two following to papers by Miss S. Wood and Mr. A. M. Ogilvie, on Berkeley's *Principles of Human Knowledge*. The reading was followed in each case by a discussion, turning in the first instance upon the meaning of the portion of Berkeley introduced by the paper, and then proceeding to more general questions concerning the nature and value of Berkeley's philosophy as a whole. It is proposed to devote the remainder of the Session to a similar study of Hume's *Treatise of Human Nature*, except that some few meetings, including the first on Jan. 7th, will be reserved for the discussion of original communications.

The bi-monthly journal, *La Philosophie positive*, founded in 1867 by MM. Littré and Wyrouboff, and since Littré's death carried on by MM. Robin and Wyrouboff, announces that it will come to an end with the No. just issued. The editors give as the reason for their decision to suspend publication, that at the present time philosophical studies are discredited and men's minds are mainly occupied with questions of a practical order. They add indeed—what hardly consists with the other statement—that, as the positivist philosophy has now spread far beyond the limits of a school,

the work of the journal is in a manner done, and there was need, if it was to go on, that it should begin to discharge its philosophical function on a much larger scale. But they end in the previous key, of somewhat regretful complaint, that the world has turned away from generalities and thinks now only of passing affairs. Whether they are right in this view of theirs or not, acknowledgment is due to the energy and intelligence with which the journal has been conducted during its life-time. Not only did Littré illumine its pages with many a contribution of first-rate merit, but also M. Wyrouboff and other writers have ever been ready to measure their positivist doctrine (learned from Comte in his earlier phase) against the other philosophical thought of the day.

Dr. Martineau has issued a second edition of his *Study of Spinoza* (Macmillan). Taking careful account of every criticism which has reached him, he has introduced a few corrections into the Biography; but he has not seen reason to modify any of the interpretations which repeated study and long reflection had led him to put upon the Philosophy. An Index of Subjects and Index of References have been added.

The Oxford Translations of Lotze's *Logik* and *Metaphysik* will be issued by the Clarendon Press, probably, in February or March.

Mr. Henry Sidgwick has been appointed Knightsbridge Professor of Moral Philosophy in the University of Cambridge.

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. XVII. No. 2. W. H. Kimball—Swedenborg and Henry James. Fichte—Facts of Consciousness (trans.). J. G. Woerner—On the nature of Property and its Devolution. Goeschel—On the Immortality of the Soul (trans.). Trentowski—On the Sources and Faculties of Cognition. J. Ward—Objects and their Interaction. D. J. Snider—Homer's *Iliad*. Notes and Discussions.

REVUE PHILOSOPHIQUE.—VIIIme Année, No. 9. E. Chauvet—La médecine grecque et ses rapports à la philosophie. Ch. Bénard—La division des arts dans l'esthétique allemande. S. Tannery—Héraclite et le concept de Logos. Analyses et Comptes-rendus. Notices bibliographiques, &c. No. 10. J. Delboeuf—La matière brute et la matière vivante. G. Tarde—L'archéologie et la statistique (i.). J. Andrade—Les théoriciens moralistes et la moralité. Notes et Discussions (F. Paulhan—Images et mouvements). Analyses, &c. (W. L. Collins, *Butler*; J. Veitch, *Hamilton*; W. Wallace, *Kant*; R. Adamson, *Fichte*). &c. No. 11. D. Nolen—Les logiciens allemands contemporains (i.). G. Lyon—Le monisme en Angleterre: W. K. Clifford. G. Tarde—L'archéologie et la statistique (fin). Analyses, &c. (F. Galton, *Inquiries into Human Faculty*; J. Braid, *Neurypnologie*, trans.). &c. No. 12. H. Marion—James Mill d'après les recherches de M. A. Bain. W. Bevan Lewis—Les localisations cérébrales et la théorie de l'évolution. J. Sully—Le développement mental. Th. Ribot—Les conditions organiques de la personnalité. Notes et Discussions. (Ch. Secrétan et A. Fouillée—La liberté et le déterminisme. P. Tannery—Les forces fonctions des temps). Analyses, &c. (M. Guthrie, *On Mr. Spencer's Unification of Knowledge*, &c.). Rev. des Period.

LA CRITIQUE PHILOSOPHIQUE.—XIIme Année, Nos. 32-42. F. Pillon—À propos de la notion de nombre (32, 33, 36, 39). Le vrai principe de la morale selon M. Fouillée (35). J. Thomas—Les théories sur le progrès (33). L. Dauriac—De la psychologie indépendante (39); Le sens commun est idéaliste (41). C. Renouvier—Les raisons physiques de poser l'existence d'un monde invisible (40). Ch. Pellarin—La sociologie de M. Herbert Spencer (42).

La Filosofia delle Scuole Italiane.—Vol. XXVII. Disp. 3. G. Fontana—Il diritto secondo la legge di evoluzione. L. Ferri—Osservazioni sopra una bambina. B. Labanca—Critica filosofica e religiosa di A. Tagliaferri. T. Mamiani—Della ipotesi darviniana e sua trasmutazione in altra assai piu probabile. R. Bobba—Il problema di conoscenza secondo l'empirismo fisiologico e la filosofia sperimentale di Aristotele. T. M.—Il R. Liceo E. Q. Visconti di Roma nell' anno scolastico 1881-2. Bibliografia. Vol. XXVIII. Disp. 1. R. Bobba—Il problema &c. (fine). P. Ragnisco—Valore ed origine del principio di contraddizione. T. Mamiani—Necessità modo e misura dell' intervento governativo nelle questioni sociali. T. M.—Della ipotesi darviniana &c. (ii.). &c. Disp. 2. B. Labanca—Virtù e natura. L. Ferri—Di Marsilio Ficino e delle cause della rinascenza del platonismo nel quattrocento. T. Mamiani—Epoche qualitative della cristianità e del papato. T.—Di Scoto Erigena. Bibliografia.

Zeitschrift für Philosophie, &c.—Bd. LXXXIII. Heft 2. R. Eucken—Ueber Bilder u. Gleichnisse bei Kant. Achelis—Ueber die Naturphilosophie der Gegenwart. G. Teichmüller—Ueber den Ursprung des Bewusstseins. H. Ulrici—Der Begriff des Rechts. H. U.—Der Begriff der Nothwendigkeit. Recensionen. Bibliographie.

Philosophische Monatshefte.—Bd. XIX. Heft 9 u. 10. J. Volkelt—Erfundene Empfindungen. R. Eucken—Leibniz u. Geulinx. R. Lehmann—Ueber das Verhältniss des transcendentalen zum metaphysischen Idealismus. Recensionen. J. Witte—Prof. H. Vaihinger u. seine Polemik. Literaturbericht. &c.

Zeitschrift für Völkerpsychologie u. Sprachwissenschaft.—Bd. XIV. Heft 4. E. Wohlwill—Die Entdeckung des Beharrungsgesetzes (i.). L. Tobler—Ueber den Begriff u. besondere Bedeutungen des Plurals bei Substantiven. Beurteilungen. J. Duboc—Schlussbemerkung zu dem Aufsatz: Kant u. der Eudämonismus.

Vierteljahrsschrift für wissenschaftliche Philosophie.—Bd. VII. Heft 4. W. Schuppe—Die Normen des Denkens. R. v. Schubert-Soldern—Ueber Erkenntniss *a priori* u. *a posteriori*. G. Heymans—Zurechnung u. Vergeltung (i.). Anzeigen, &c.

Philosophische Studien (herausg. von W. Wundt).—Bd. II. Heft 1. W. Wundt—Ueber das Weber'sche Gesetz. V. Estel—Neue Versuche über den Zeitsinn. M. Friedrich—Zur Methodik der Apperceptionsversuche. J. Merkel—Die zeitlichen Verhältnisse der Willensthätigkeit. E. Kraepelin—Zur Psychologie des Komischen (i.).